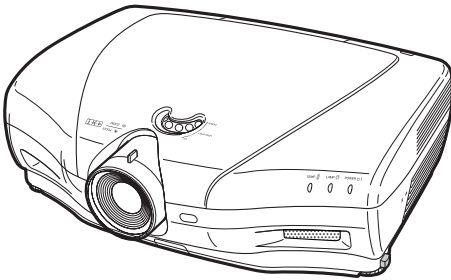


SHARP SERVICE MANUAL

No. S96W3XVZ20000

DLP PROJECTOR



XV-Z20000 XV-Z21000 MODELS DT-5000

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Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SAFETY PRECAUTION**IMPORTANT SERVICE SAFETY NOTES****IMPORTANT SERVICE SAFETY NOTES (for USA)**

■ **Service work should be performed only by qualified service technicians who are thoroughly familiar with all safety checks and servicing guidelines as follows:**

WARNING

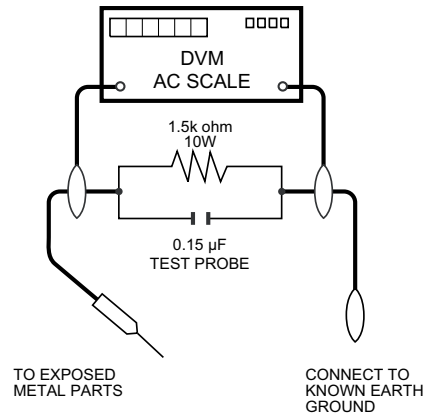
1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.

**BEFORE RETURNING THE PROJECTOR:
(Fire & Shock Hazard)**

Before returning the projector to the user, perform the following safety checks:

1. Inspect lead wires are not pinched between the chassis and other metal parts of the projector.
2. Inspect all protective devices such as non-metallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, check for current leakage in the following manner:
 - Plug the AC cord directly into a 120-volt AC outlet, (Do not use an isolation transformer for this test).
 - Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15 μ F capacitor in parallel between all exposed metal cabinet parts and earth ground.

- Use an AC voltmeter with sensitivity of 5000 ohm per volt., or higher, sensitivity to measure the AC voltage drop across the resistor.
- All checks must be repeated with the AC plug connection reversed. (If necessary, a non-polarized adapter plug must be used only for the purpose of completing these checks.)
Any reading of 0.3 volts RMS (this corresponds to 0.2 milliamp. AC.) or more is excessive and indicates a potential shock hazard which must be corrected before returning the unit to the owner.

**SAFETY NOTICE**

Many electrical and mechanical parts in DMD™ Projector have special safety-related characteristics. These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc.

Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by “ $\triangle$ ” and shaded areas in the Replacement Parts Lists and Schematic Diagrams. For continued protection, replacement parts must be identical to those used in the original circuit. The use of a substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire or other hazards.

WARNING: The bimetallic component has the primary conductive side exposed. Be very careful in handling this component when the power is on.

AVIS POUR LA SECURITE

De nombreuses pièces, électriques et mécaniques, dans les projecteur à DMD™ présentent des caractéristiques spéciales relatives à la sécurité, qui ne sont souvent pas évidentes à vue.

Le degré de protection ne peut pas être nécessairement augmentée en utilisant des pièces de remplacement étalonnées pour haute tension, puissance, etc.

Les pièces de remplacement qui présentent ces caractéristiques sont identifiées dans ce manuel; les pièces électriques qui présentent ces particularités sont identifiées par la marque “ $\triangle$ ” et hachurées dans la liste des pièces de remplacement et les diagrammes schématiques. Pour assurer la protection, ces pièces doivent être identiques à celles utilisées dans le circuit d'origine. L'utilisation de pièces qui n'ont pas les mêmes caractéristiques que les pièces recommandées par l'usine, indiquées dans ce manuel, peut provoquer des électrocutions, incendies ou autres accidents.

AVERTISSEMENT: La composante bimétallique dispose du conducteur primaire dénudé. Faire attention lors de la manipulation de cette composante sous tension.

NOTE TO SERVICE PERSONNEL

UV-RADIATION PRECAUTION

The light source, UHP lamp, in the LCD projector emits small amounts of UV-Radiation.

AVOID DIRECT EYE AND SKIN EXPOSURE.

To ensure safety please adhere to the following:

1. Be sure to wear sun-glasses when servicing the projector with the lamp turned "on" and the top enclosure removed.



2. Do not operate the lamp outside of the lamp housing.



3. Do not operate for more than 2 hours with the enclosure removed.



UV-Radiation and Medium Pressure Lamp Precautions

1. Be sure to disconnect the AC plug when replacing the lamp.
2. Allow one hour for the unit to cool down before servicing.
3. Replace only with same type lamp. Type AN-K20LP rated 355V/220W.
4. The lamp emits small amounts of UV-Radiation, avoid direct-eye contact.
5. The medium pressure lamp involves a risk of explosion. Be sure to follow installation instructions described below and handle the lamp with care.

NOTE POUR LE PERSONNEL D'ENTRETIEN

PRECAUTION POUR LES RADIATIONS UV

La source de lumière, la lampe UHP, dans le projecteur LCD émet de petites quantités de radiation UV.

EVITEZ TOUTE EXPOSITION DIRECTE DES YEUX ET DE LA PEAU.

Pour votre sécurité, nous vous prions de respecter les points suivants:

1. Toujours porter des lunettes de soleil lors d'un entretien du projecteur avec la lampe allumée et le haut du coffret retiré.



2. Ne pas faire fonctionner la lampe à l'extérieur du boîtier de lampe.



3. Ne pas faire fonctionner plus de 2 heures avec le coffret retiré.



Précautions pour les radiations UV et la lampe moyenne pression

1. Toujours débrancher la fiche AC lors du remplacement de la lampe.
2. Laisser l'unité refroidir pendant une heure avant de procéder à l'entretien.
3. Ne remplacer qu'avec une lampe du même type. Type AK-K20LP, caractéristique 355/220W.
4. La lampe émet de petites quantités de radiation UV-éviter tout contact direct avec les yeux.
5. La lampe moyenne pression implique un risque d'explosion. Toujours suivre les instructions d'installation décrites ci-dessous et manipuler la lampe avec soin.

UV-RADIATION PRECAUTION (Continued)

■ Lamp Replacement

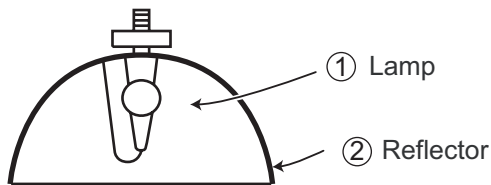
Note:

Since the lamp reaches a very high temperature during units operation replacement of the lamp should be done at least one hour after the power has been turned off. (to allow the lamp to cool off.)

Installing the new lamp, make sure not to touch the lamp (bulb) replace the lamp by holding its reflector

②.

[Use original replacement only.]



DANGER ! — Never turn the power on without the lamp to avoid electric-shock or damage of the devices since the stabilizer generates high voltages at its start.

Since small amounts of UV-radiation are emitted from an opening between the exhaust fans, it is recommended to place the cap of the optional lens on the opening during servicing to avoid eye and skin exposure.

PRECAUTION POUR LES RADIATIONS UV (Suite)

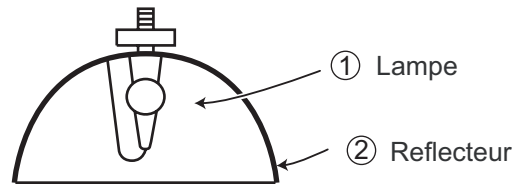
■ Remplacement de la lampe

Remarque:

Comme la lampe devient très chaude pendant le fonctionnement de l'unité, son remplacement ne doit être effectué au moins une heure après avoir coupé l'alimentation (pour permettre à la lampe de refroidir).

En installant la nouvelle lampe, s'assurer de ne pas toucher la lampe (ampoule). Remplacer la lampe en tenant son réflecteur ②.

[N'utiliser qu'un remplacement d'origine.]



DANGER ! — Ne jamais mettre sous tension sans la lampe pour éviter un choc électrique ou des dommages des appareils car le stabilisateur génère de hautes tensions à sa mise en route.

Comme de petites quantités de radiation UV sont émises par une ouverture entre les ventilateurs aspirants, il est recommandé de placer le capuchon de l'optique optionnelle sur l'ouverture pendant l'entretien pour éviter une exposition des yeux et la peau.

WARNING: High brightness light source, do not stare into the beam of light, or view directly. Be especially careful that children do not stare directly in to the beam of light.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS UNIT TO MOISTURE OR WET LOCATIONS.



CAUTION

RISK OF ELECTRIC SHOCK.
DO NOT REMOVE SCREWS
EXCEPT SPECIFIED USER
SERVICE SCREW.



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE CABINET.
NO USER-SERVICEABLE PARTS EXCEPT LAMP UNIT.
REFER SERVICING TO QUALIFIED SERVICE
PERSONNEL.



The lightning flash with arrowhead within a triangle is intended to tell the user that parts inside the product are risk of electric shock to persons.



The exclamation point within a triangle is intended to tell the user that important operating and servicing instructions are in the manual with the projector.

CAUTION (POWER Unit)

For continued
protection against a
risk of fire, replace
only with same type
6.3AH, AC250V fuse (F701)
1.6AL, AC250V fuse (F702)

AVERTISSEMENT: Source lumineuse de grande intensité. Ne pas fixer le faisceau lumineux ou le regarder directement. Veiller particulièrement à éviter que les enfants ne fixent directement le faisceau lumineux.

AVERTISSEMENT: AFIN D'ÉVITER TOUT RISQUE D'INCENDIE OU D'ELECTROCUTION, NE PAS PLACER CET APPAREIL DANS UN ENDROIT HUMIDE OU MOUILLE.



ATTENTION

RISQUE D'ÉLECTROCUTION.
NE PAS RETIRER LES VIS
À L'EXCEPTION DE LA VIS
RÉSERVÉE À L'ENTRETIEN.



ATTENTION: POUR ÉVITER TOUT RISQUE
D'ELECTROCUTION, NE PAS RETIRER LE CAPOT.
AUCUNE DES PIÈCES INTÉRIEURES N'EST RÉPARABLE
PAR L'UTILISATEUR, À L'EXCEPTION DE L'UNITÉ DE
LAMPE. POUR TOUTE RÉPARATION, S'ADRESSER À UN
TECHNICIEN D'ENTRETIEN QUALIFIÉ.



L'éclair terminé d'une flèche à l'intérieur d'un triangle indique à l'utilisateur que les pièces se trouvant dans l'appareil sont susceptibles de provoquer une décharge électrique.



Le point d'exclamation à l'intérieur d'un triangle indique à l'utilisateur que les instructions de fonctionnement et d'entretien sont détaillées dans les documents fournis avec le projecteur.

PRECAUTION

(Unité de PROTECTION)

Pour une protection
continue contre un
risques d'incendie, ne
remplacer qu'avec un
fusible 6.3AH, AC250V fuse (F701)
1.6AL, AC250V fuse (F702)

Precautions for using lead-free solder

■Employing lead-free solder

- "PWBs" of this model employs lead-free solder. The LF symbol indicates lead-free solder, and is attached on the PWBs and service manuals. The alphabetical character following LF shows the type of lead-free solder.

Example:

LFa

Sn-Ag-Cu

Indicates lead-free solder of tin, silver and copper.

■Using lead-free wire solder

- When fixing the PWB soldered with the lead-free solder, apply lead-free wire solder. Repairing with conventional lead wire solder may cause damage or accident due to cracks.

As the melting point of lead-free solder (Sn-Ag-Cu) is higher than the lead wire solder by 40 °C, we recommend you to use a dedicated soldering bit, if you are not familiar with how to obtain lead-free wire solder or soldering bit, contact our service station or service branch in your area.

■Soldering

- As the melting point of lead-free solder (Sn-Ag-Cu) is about 220 °C which is higher than the conventional lead solder by 40 °C, and as it has poor solder wettability, you may be apt to keep the soldering bit in contact with the PWB for extended period of time. However, Since the land may be peeled off or the maximum heat-resistance temperature of parts may be exceeded, remove the bit from the PWB as soon as you confirm the steady soldering condition.

Lead-free solder contains more tin, and the end of the soldering bit may be easily corroded. Make sure to turn on and off the power of the bit as required.

If a different type of solder stays on the tip of the soldering bit, it is alloyed with lead-free solder. Clean the bit after every use of it.

When the tip of the soldering bit is blackened during use, file it with steel wool or fine sandpaper.

- Be careful when replacing parts with polarity indication on the PWB silk.

Lead-free wire solder for servicing

Part No.	★	Description	Code
ZHNDai123250E	J	φ0.3mm 250g(1roll)	BL
ZHNDai126500E	J	φ0.6mm 500g(1roll)	BK
ZHNDai12801KE	J	φ1.0mm 1kg(1roll)	BM

CHAPTER 1. OPERATION MANUAL

[1] Specifications



Specifications

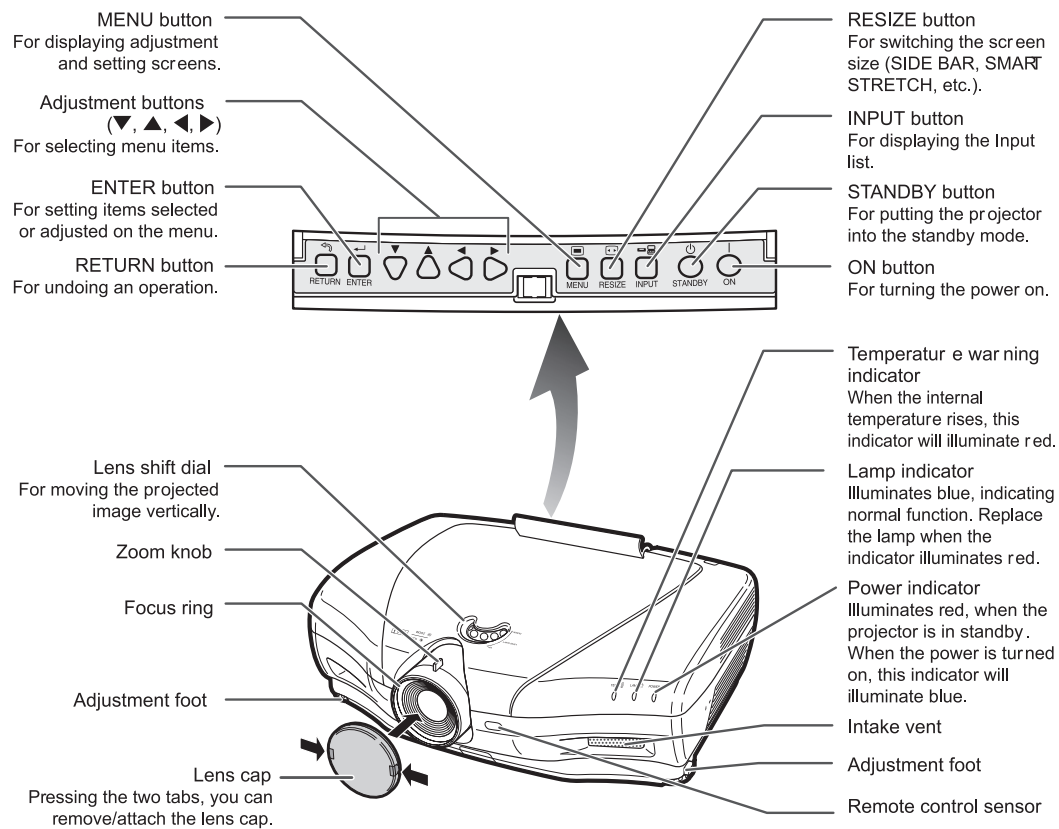
Product type	Projector
Model	XV-Z20000/XV-Z21000/DT-5000
Video system	NTSC 3.58/NTSC 4.43/PAL/PAL-M/PAL-N/PAL 60/SECAM DTV480i/DTV480P/DTV720P/DTV1080i/DTV1080P
Display method	DLP® chip
DLP® panel	Panel size: 0.95" No. of dots: 2,073,600 dots (1,920 [H] × 1,080 [V])
Lens	1–1.35 × zoom lens, F2.5–8, f = 38.9–52.4 mm
Projection lamp	220 W SHP lamp
Video input signal	RCA Connector: VIDEO (VIDEO), composite video, 1.0 Vp-p, sync negative, 75 Ω terminated
S-video input signal	4-pin Mini DIN connector (S-VIDEO) Y (luminance signal): 1.0 Vp-p, sync negative, 75 Ω terminated C (chrominance signal): Burst 0.286 Vp-p, 75 Ω terminated
Component input signal	RCA Connector (COMPONENT/RGB1, 2) Y: 1.0 Vp-p, sync negative, 75 Ω terminated Pb: 0.7 Vp-p, 75 Ω terminated Pr: 0.7 Vp-p, 75 Ω terminated
Analog RGB/Digital input signal	29-pin DVI-I terminal (DVI) <Digital> Input impedance 50 Ω Input level 250–1000 mV <Analog> Input Impedance 75 Ω Input level 0.7 Vp-p <Synchronization signal> • Separate sync / Composite sync Input level TTL level Input impedance 1 KΩ • Green on sync Input level (Synchronizing input) 0.286 Vp-p Input Impedance 75 Ω
HDMI input signal	HDMI terminal (Video signal only)
TRIGGER terminal	Power jack: DC 12 V output
Computer control signal	9-pin D-sub connector (RS-232C Terminal)
Horizontal resolution	520 TV lines (NTSC 3.58 input), 1080 TV lines (DTV 1080 P input)
Pixel clock	12–150 MHz
Vertical frequency	43–100 Hz
Horizontal frequency	15–81 kHz
Rated voltage	AC 100–240 V
Input current	3.3 A (When using AC 100 V)
Rated frequency	50/60 Hz
Power consumption	320 W (Lamp Setting "Bright")/ 265 W (Lamp Setting "Eco + Quiet") with AC 100 V 310 W (Lamp Setting "Bright")/ 260 W (Lamp Setting "Eco + Quiet") with AC 240 V
Power consumption (standby)	0.1 W (AC 100 V, RS-232C OFF) - 0.18 W (AC 240 V, RS-232C OFF)
Heat dissipation	1,200 BTU/hour
Operating temperature	41°F to 95°F (+5°C to +35°C)
Storage temperature	–4°F to 140°F (–20°C to +60°C)
Cabinet	Plastic
I/R carrier frequency	38 kHz
Dimensions (approx.)	18 ¹¹ / ₁₆ " × 6 ⁵¹ / ₆₄ " × 16 ⁵ / ₃₂ " (475 (W) × 172.5 (H) × 410.2 (D) mm) (main body only)
Weight (approx.)	20.7 lbs. (9.4 kg)
Replacement parts	Remote control, Power cord, Lens cap, Terminal cover, Projector operation manual

As a part of policy of continuous improvement, SHARP reserves the right to make design and specification changes for product improvement without prior notice. The performance specification figures indicated are nominal values of production units. There may be some deviations from these values in individual units.

[2] Parts Name and Basic Operation

Part Names and Functions

Projector

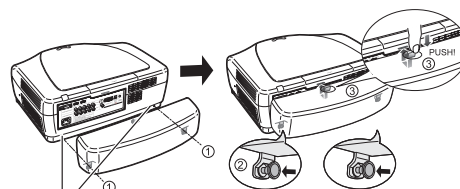


Using the Terminal Cover

When the projector is used on a desktop, high mounted or ceiling mounted, attach the terminal cover (supplied) to hide the connecting cables.

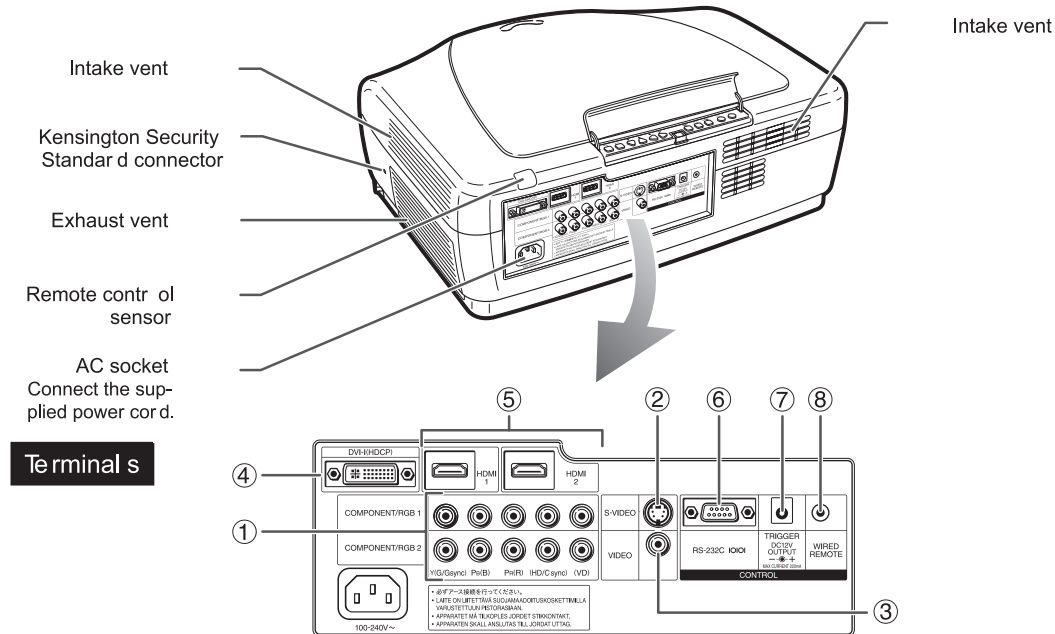
Attaching the Terminal Cover

- ① Align the hook on the terminal cover with the insert hole in the hook at the back of the projector.
- ② Press the hook in the direction indicated with the arrow to fasten the terminal cover to the projector.
- ③ Insert the terminal cover into the mounting groove on the projector while pushing the tabs inside the terminal cover to the outside with your fingers.



Remove the rubber cap attached on the projector and attach the hooks.

Projector (Rear View)



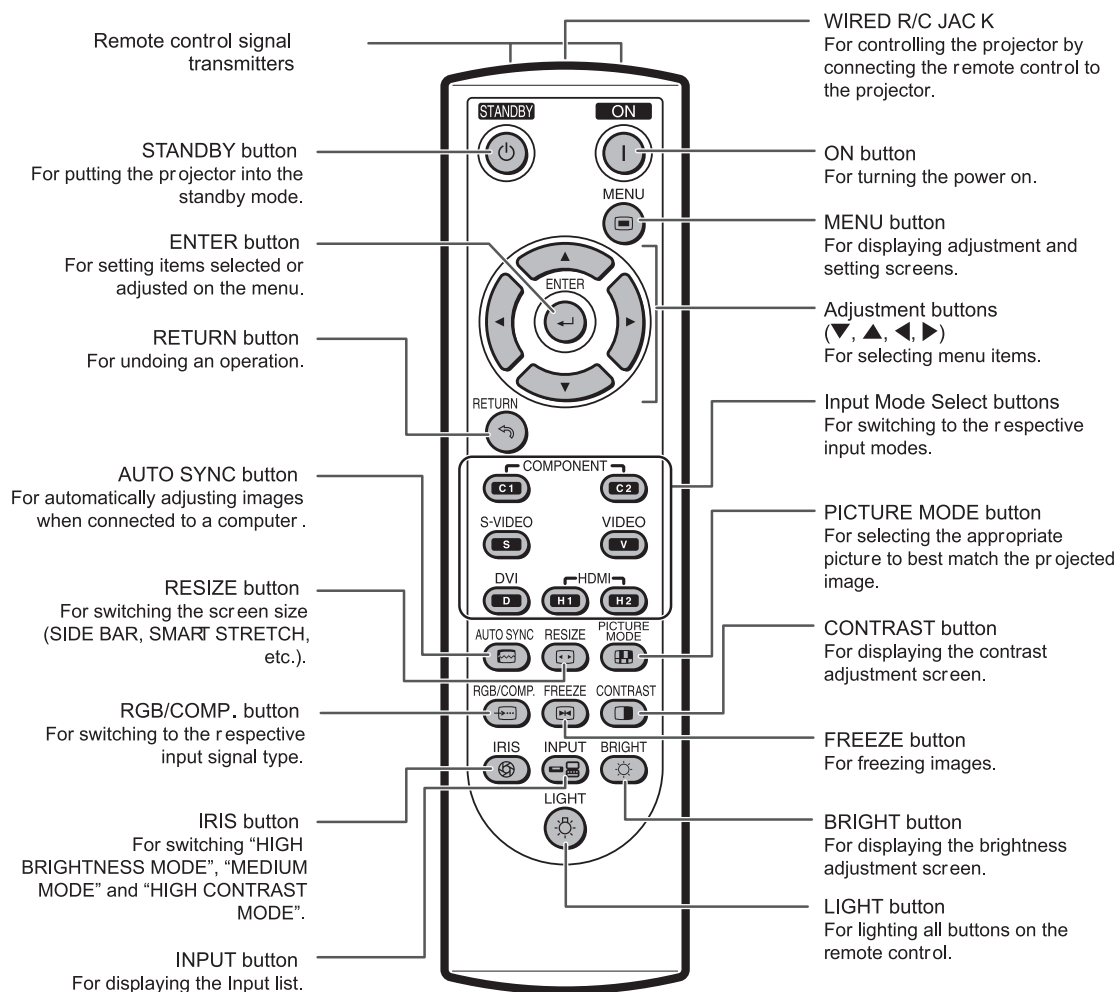
Terminal	Description
①	COMPONENT/RGB1, 2 terminals Connecting video equipment with component output terminal (DVD player , etc.) or a computer with analog RGB output terminal .
②	S-VIDEO terminal Connecting video equipment with S-video output terminal (DVD player , VCR, etc.).
③	VIDEO terminal Connecting video equipment without S-video output terminal.
④	DVI terminal Connecting video equipment with DVI output terminal (DVD player , DTV decoder, computer, etc.).
⑤	HDMI1, 2 terminals Connecting video equipment with HDMI output terminal.
⑥	RS-232C terminal Connecting a computer to control the projector.
⑦	TRIGGER terminal When the projector is turned on, a control signal (DC 12V) outputs from this terminal. If an electric screen or other compatible device is connected, it can be turned on when the projector is turned on.
⑧	WIRED REMOTE control input terminal Connecting the remote control via a cable when the projector is placed out of the reach of remote control signals.

Using the Kensington Lock

- This projector has a Kensington Security Standard connector for use with a Kensington MicroSaver Security System. Refer to the information that came with the system for instructions on how to use it to secure the projector.

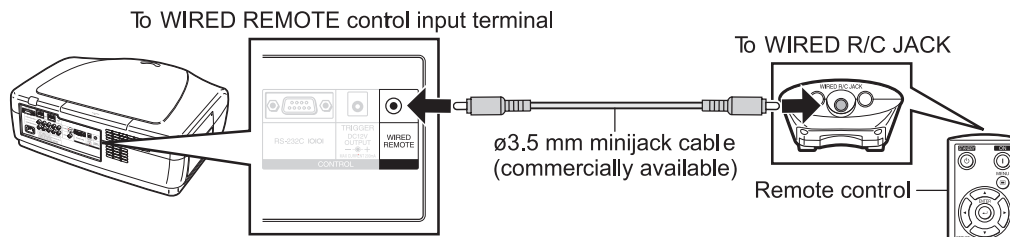
Part Names and Functions (Continued)

Remote Control



Connecting the Remote Control to the Projector

When the remote control cannot be used due to the range or positioning of the projector, connect a $\phi 3.5$ mm minijack cable (commercially available) from the WIRED R/C JACK on the top of the remote control to the WIRED REMOTE control input terminal on the rear of the projector.



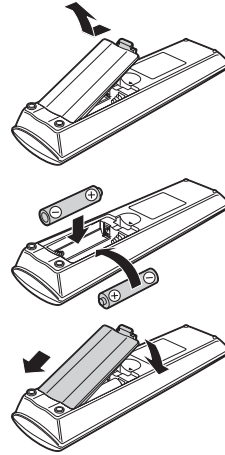
Using the Remote Control

Inserting the Batteries

1 Pull down the tab on the cover and remove the cover towards the direction of the arrow.

2 Insert the supplied batteries and put back the cover.

- Make sure the polarities correctly match the $\oplus$ and $\ominus$ marks inside the battery compartment.
- When putting back the cover, be sure that the cover clicks in place and settles.



Usable Range

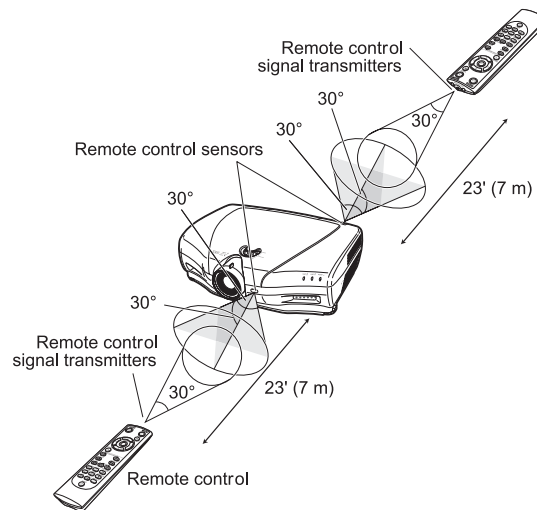
The remote control can be used to control the projector within the ranges shown in the illustration.

Note

- The signal from the remote control can be reflected off a screen for easy operation. However, the effective distance of the signal may differ depending on the screen material.

When using the remote control:

- Be sure not to drop, expose to moisture or high temperature.
- The remote control may malfunction under a fluorescent lamp. In this case, move the projector away from the fluorescent lamp.



Incorrect use of the batteries may cause them to leak or explode. Please follow the precautions below.

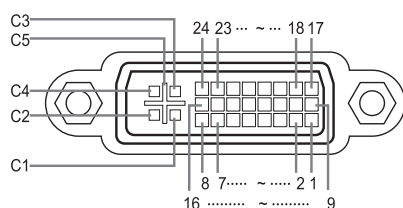
Caution

- Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.
- Insert the batteries making sure the polarities correctly match the $\oplus$ and $\ominus$ marks inside the battery compartment.
- Batteries of different types have different properties, therefore do not mix batteries of different types.
- Do not mix new and old batteries. This may shorten the life of new batteries or may cause old batteries to leak.
- Remove the batteries from the remote control once they have run out, as leaving them in can cause them to leak. Battery fluid from leaked batteries is harmful to skin, therefore be sure to first wipe them and then remove them using a cloth.

- The batteries included with this projector may run down in a short period, depending on how they are kept. Be sure to replace them as soon as possible with new batteries.
- Remove the batteries from the remote control if you are not to use the remote control for a long time.
- Comply with the rules (ordinance) of each local government when disposing of worn-out batteries.

Connecting Pin Assignments

DVI-I Terminal: 29-pin connector



• DVI Digital Input

Pin No.	Signal	Pin No.	Signal
1	T.M.D.S data 2–	16	Hot plug detection
2	T.M.D.S data 2+	17	T.M.D.S data 0–
3	T.M.D.S data 2 shield	18	T.M.D.S data 0+
4	Not connected	19	T.M.D.S data 0 shield
5	Not connected	20	Not connected
6	DDC clock	21	Not connected
7	DDC data	22	T.M.D.S clock shield
8	Not connected	23	T.M.D.S clock+
9	T.M.D.S data 1–	24	T.M.D.S clock–
10	T.M.D.S data 1+	C1	Not connected
11	T.M.D.S data 1 shield	C2	Not connected
12	Not connected	C3	Not connected
13	Not connected	C4	Not connected
14	+5V power	C5	Ground
15	Ground		

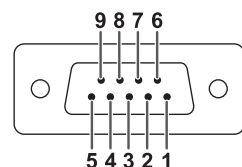
• DVI Analog RGB Input

Pin No.	Signal	Pin No.	Signal
1	Not connected	16	Hot plug detection
2	Not connected	17	Not connected
3	Not connected	18	Not connected
4	Not connected	19	Not connected
5	Not connected	20	Not connected
6	DDC clock	21	Not connected
7	DDC data	22	Not connected
8	Vertical sync	23	Not connected
9	Not connected	24	Not connected
10	Not connected	C1	Analog input R
11	Not connected	C2	Analog input G
12	Not connected	C3	Analog input B
13	Not connected	C4	Horizontal sync
14	+5V power	C5	Ground
15	Ground		

• DVI Analog Component Input

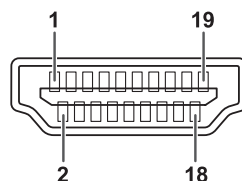
Pin No.	Signal	Pin No.	Signal
1	Not connected	16	Not connected
2	Not connected	17	Not connected
3	Not connected	18	Not connected
4	Not connected	19	Not connected
5	Not connected	20	Not connected
6	Not connected	21	Not connected
7	Not connected	22	Not connected
8	Not connected	23	Not connected
9	Not connected	24	Not connected
10	Not connected	C1	Analog input Pb/Cr
11	Not connected	C2	Analog input Y
12	Not connected	C3	Analog input Pb/Cb
13	Not connected	C4	Not connected
14	Not connected	C5	Ground
15	Ground		

RS-232C Terminal: 9-pin D-sub male connector



Pin No.	Signal	Name	I/O	Reference
1				Not connected
2	RD	Receive Data	Input	Connected to internal circuit
3	SD	Send Data	Output	Connected to internal circuit
4		Reserved		Connected to internal circuit
5	SG	Signal Ground		Connected to internal circuit
6		Reserved		Connected to internal circuit
7		Reserved		Connected to internal circuit
8		Reserved		Connected to internal circuit
9				Not connected

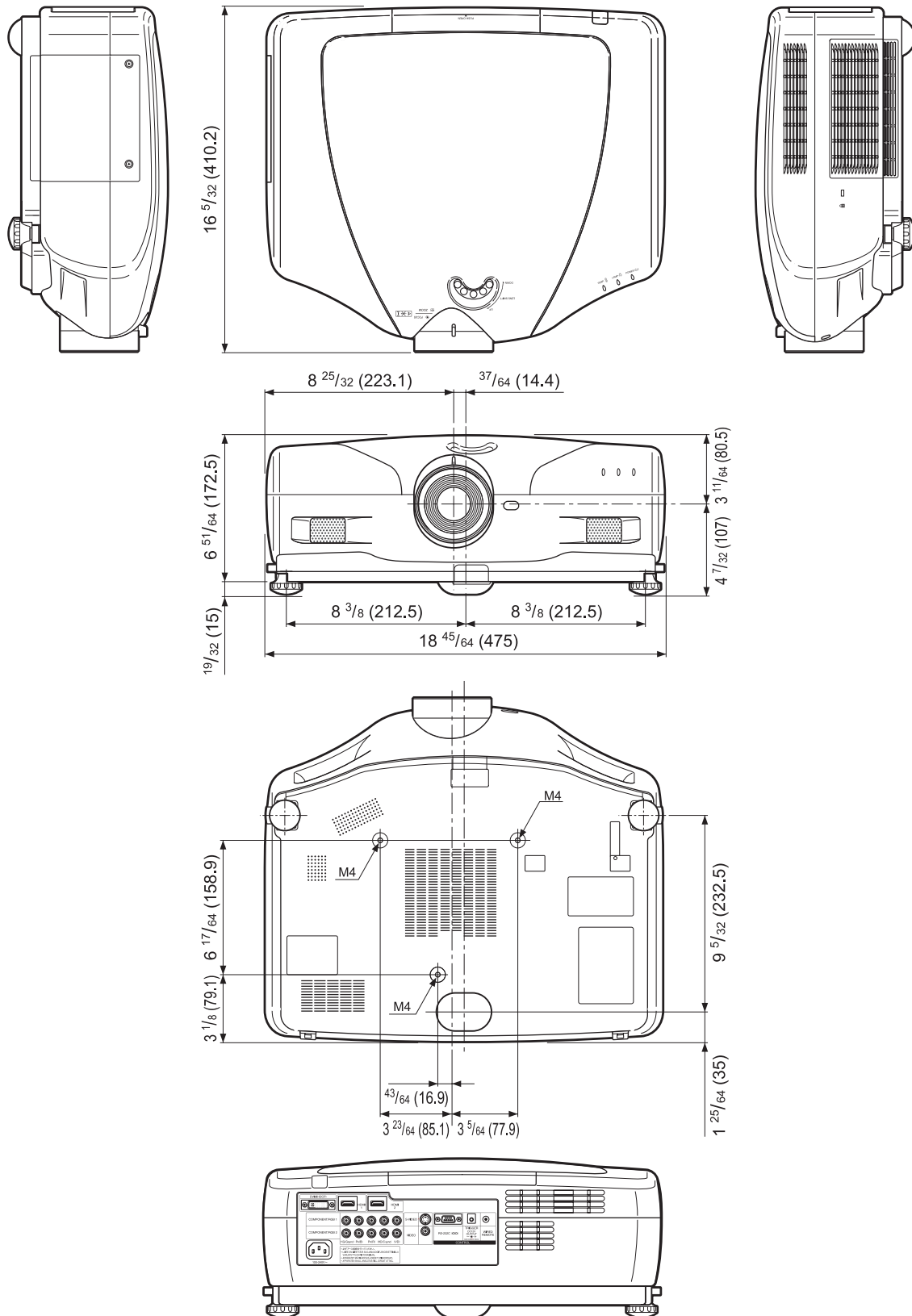
HDMI Terminal



Pin No.	Name	Pin No.	Name	Pin No.	Name
1	T.M.D.S data 2+	8	T.M.D.S data 0 shield	14	Reserved
2	T.M.D.S data 2 shield	9	T.M.D.S data 0–	15	SCL
3	T.M.D.S data 2–	10	T.M.D.S clock+	16	SDA
4	T.M.D.S data 1+	11	T.M.D.S clock shield	17	DDC/CEC ground
5	T.M.D.S data 1 shield	12	T.M.D.S clock–	18	+5V power
6	T.M.D.S data 1–	13	CEC	19	Hot plug detection
7	T.M.D.S data 0+				

[3] DIMENSIONS

Units: inch (mm)



[4] Resetting the total lamp timer


Regarding the Lamp

Lamp

- It is recommended that the lamp be replaced with a new one (sold separately) when the remaining lamp life becomes 5% or less, or when you notice a significant deterioration in the picture and color quality. The lamp life (percentage) can be checked with the on-screen display.
- Purchase a replacement lamp of type AN-K20LP from your place of purchase, nearest Sharp Authorized Service Center or Dealer.

IMPORTANT NOTE TO U.S. CUSTOMERS:

The lamp included with this projector is backed by a 90-day parts and labor limited warranty. All service of this projector under warranty, including lamp replacement, must be obtained through a Sharp Authorized Service Center or Dealer. For the name of the nearest Sharp Authorized Service Center or Dealer, please call toll-free: 1-888-GO-SHARP (1-888-467-4277).

Hg LAMP CONTAINS MERCURY For State Lamp Disposal Information
www.lamprecycle.org or 1-800-BE-SHARP

U.S.A. ONLY

Caution Concerning the Lamp

- This projector utilizes a pressurized mercury lamp. A loud sound may indicate lamp failure. Lamp failure can be attributed to numerous sources such as: excessive shock, improper cooling, surface scratches or deterioration of the lamp due to a lapse of usage time.
 The period of time up to failure largely varies depending on the individual lamp and/or the condition and the frequency of use. It is important to note that failure can often result in the bulb cracking.
- When the lamp replacement indicator and on-screen display icon are illuminated, it is recommended that the lamp be replaced with a new one immediately, even if the lamp appears to be operating normally.
- Should the lamp break, the glass particles may spread inside the lamp cage or gas contained in the lamp may be vented into the room from the exhaust vent. Because the gas in this lamp includes mercury, ventilate the room well if the lamp breaks and avoid all exposure to the released gas. In case of exposure to the gas, consult a doctor as soon as possible.
- Should the lamp break, there is also a possibility that glass particles may spread inside of the projector. In such a case, it is recommended you contact your nearest Sharp Authorized Service Center or Dealer to assure safe operation.

Replacing the Lamp

Caution

- Do not remove the lamp unit from the projector right after use. The lamp will be very hot and may cause burn or injury.
 - Wait at least one hour after the power cord is disconnected to allow the surface of the lamp unit to fully cool before removing the lamp unit.
 - **Carefully change the lamp by following the instructions described in this section. *If you wish, you may have the lamp replaced at your nearest Sharp Authorized Service Center or Dealer.**
- * If the new lamp does not light after replacement, take your projector to the nearest Sharp Authorized Service Center or Dealer for repair.

Removing and Installing the Lamp Unit



Warning!

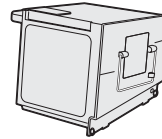
- The lamp unit becomes very hot while the projector is operating. Do not remove the lamp unit from the projector right after use. The lamp and parts around the lamp will be very hot and may cause burns or injury.



Info

- Be sure to remove the lamp unit by the handle. Be sure not to touch the glass surface of the lamp unit or the inside of the projector.
- To avoid injury to yourself and damage to the lamp, be sure to carefully follow the steps below.
- Do not loosen other screws than for the lamp unit cover and lamp unit.
(As for the lamp unit, only the silver screws are loosened.)

Optional
accessory



Lamp unit
(Type: AN-K20LP)

- 1 Press  STANDBY on the projector or  STANDBY on the remote control to put the projector into the standby mode.**

- Wait until the cooling fan stops.

- 2 Disconnect the power cord.**

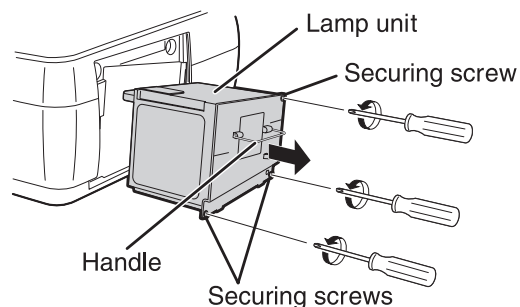
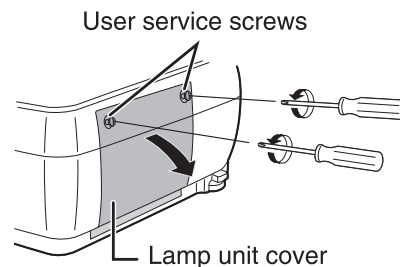
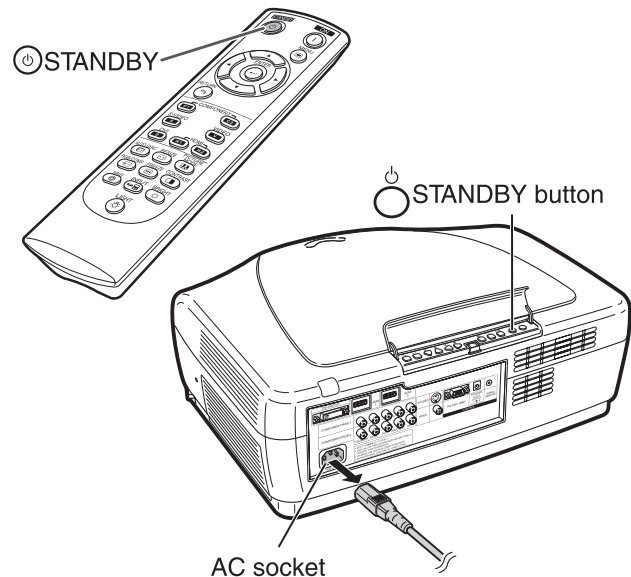
- Unplug the power cord from the AC socket.
- Leave the lamp until it has fully cooled down (about 1 hour).

- 3 Remove the lamp unit cover.**

- Loosen the user service screws that secure the lamp unit cover. Then open the cover in the direction of the arrow.

- 4 Remove the lamp unit.**

- Loosen the securing screws from the lamp unit. Hold the lamp unit by the handle and pull it in the direction of the arrow.



Regarding the Lamp (Continued)

5 Insert the new lamp unit.

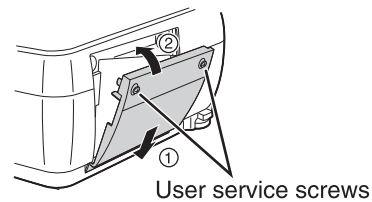
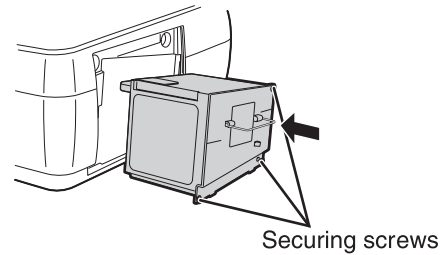
- Press the lamp unit firmly into the lamp unit compartment. Fasten the securing screws.

6 Attach the lamp unit cover.

- Close the lamp unit cover in the direction of the arrow. Then tighten the user service screws.

Info

- If the lamp unit and lamp unit cover are not correctly installed, the power will not turn on, even if the power cord is connected to the projector.



Resetting the Lamp Timer

Reset the lamp timer after replacing the lamp.

Info

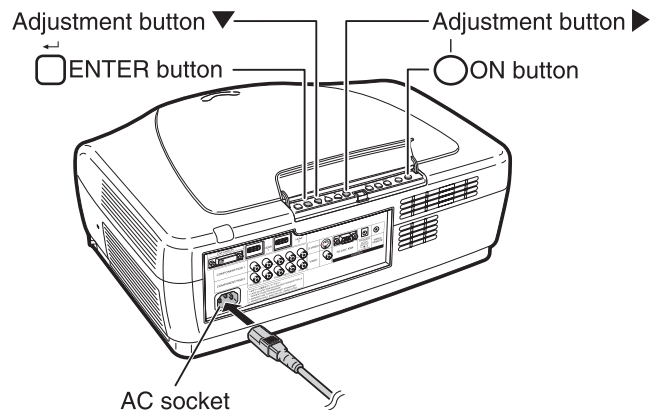
- Make sure to reset the lamp timer only when replacing the lamp. If you reset the lamp timer and continue to use the same lamp, this may cause the lamp to become damaged or explode.

1 Connect the power cord.

- Plug the power cord into the AC socket of the projector.

2 Reset the lamp timer.

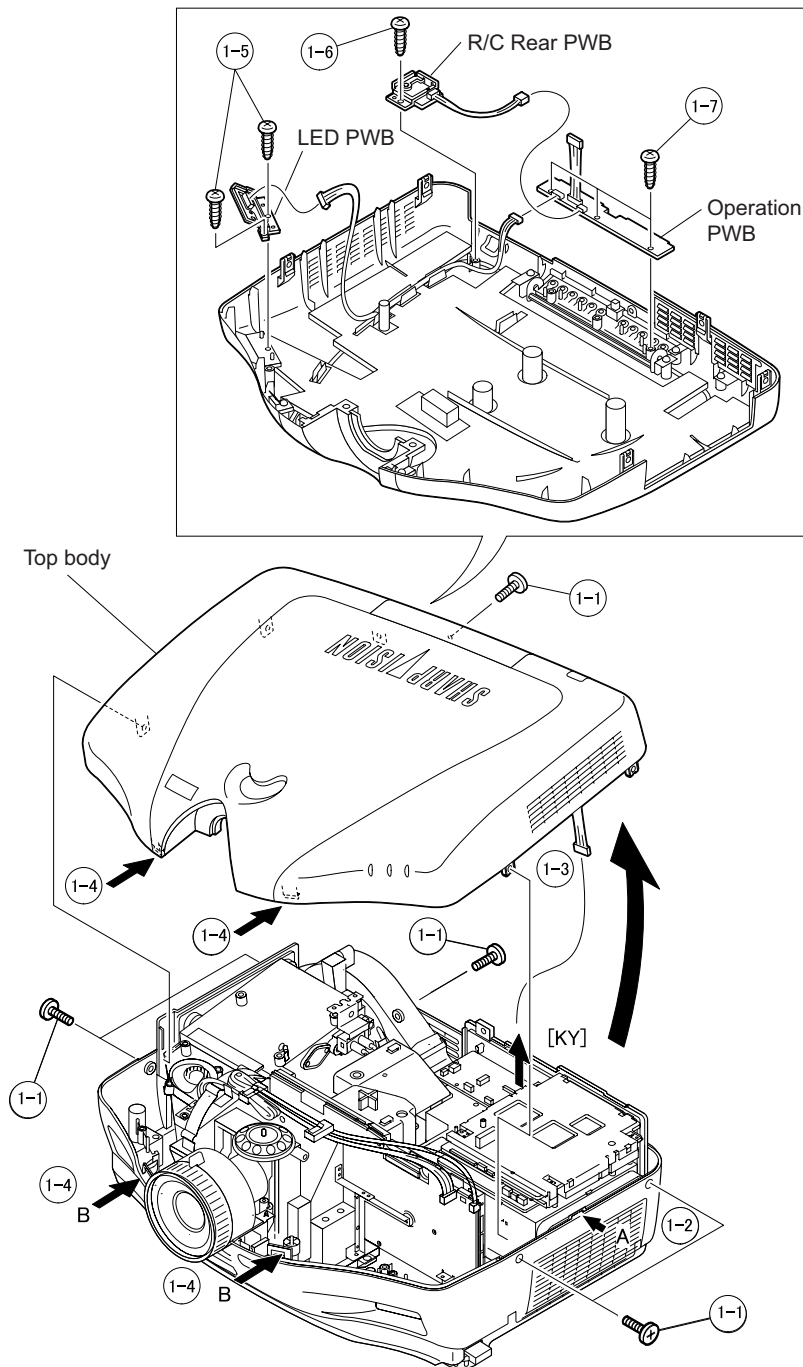
- While holding down , , and  on the projector, press  on the projector.
- “LAMP 0000H” is displayed, indicating that the lamp timer is reset.



CHAPTER 2. REMOVING OF MAJOR PARTS

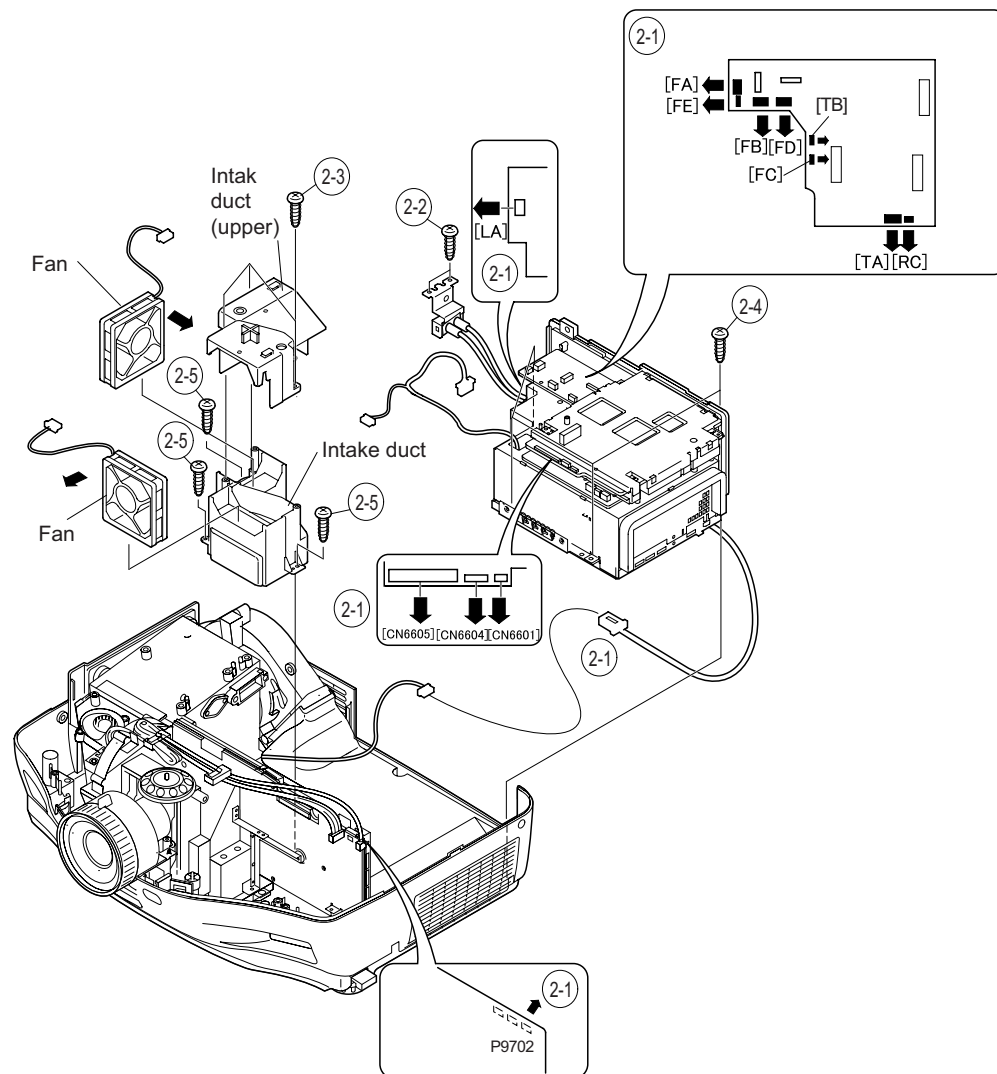
[1] Removing the Top body

1. Remove the six lock screws.
2. Press on side Arrow A of the Bottom body and lift the Rear of the Top body.
3. Dissconnect the connector.
4. Press on front Arrow B of the Bottom body and unhook the claws, and detach the Top body.
5. Remove the 2 screws and detach the LED PWB.
6. Remove the one screw and detach the R/C Rear PWB.
7. remove the three screws and detach the Operation PWB.



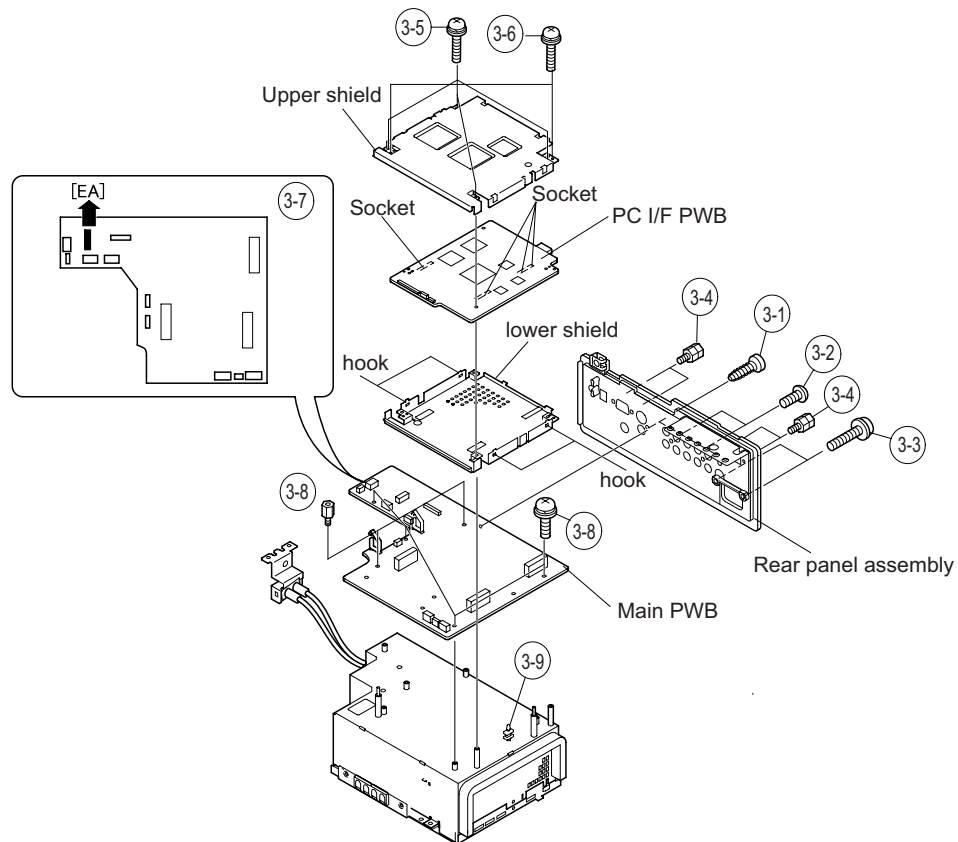
[2] Removing the Fans and PWB Unit Assembly

1. Disconnect the fourteen connectors.
2. Remove the two screws and detach the Lamp socket.
3. Remove the three screws and detach the Intake duct (upper). Detach the two Fans.
4. Remove the four screws and detach the PWB Unit Assembly.
5. Remove the three screws and detach the Intake duct (lower).



[3] Removing the Rear panel assembly, PC I/F PWB and the Main PWB

1. Remove the three screw.
2. Remove the two screws.
3. Remove the two screws.
4. Remove the four hexagonal supports and detach the Rear panel assembly.
5. Remove the four screws and detach the PC I/F assembly.
6. Remove the two screws and remove the four socket, and detach the shields.
7. Remove the one connector.
8. Remove the three screws and remove the two hexagonal supports.
9. Remove the one hook and detach the Main PWB.



[4] Precaution on Mounting the PC I/F PWB

1. Insert the lower shield into the power supply unit.
2. Align the PC I/F PWB with the socket on the main PWB, and securely connect them by pressing the 3 socket sections from above.
3. Fit the upper shield to the lower shield.

NOTE: (1) You must pay attention to the fitting direction of the upper and lower shields (both sides). (Figures 1 and 2)

(2) The upper shield on the terminal side must not be placed on the PWB. (Figure 3)

4. Install the 2 screws (3-6).
5. Install the 4 screws (3-5).

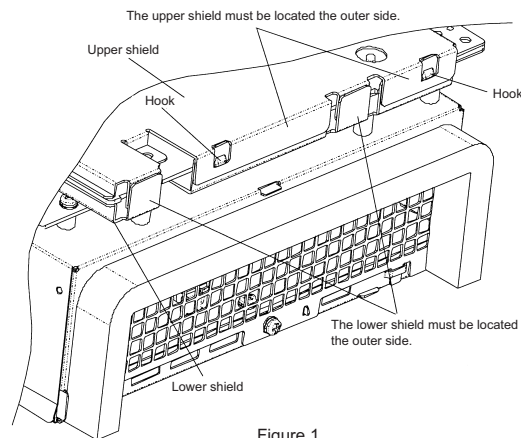


Figure 1

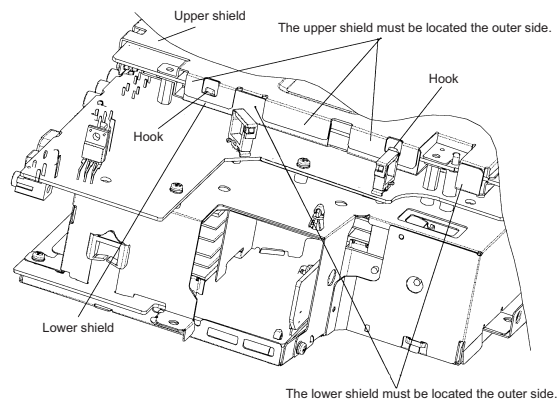


Figure 2

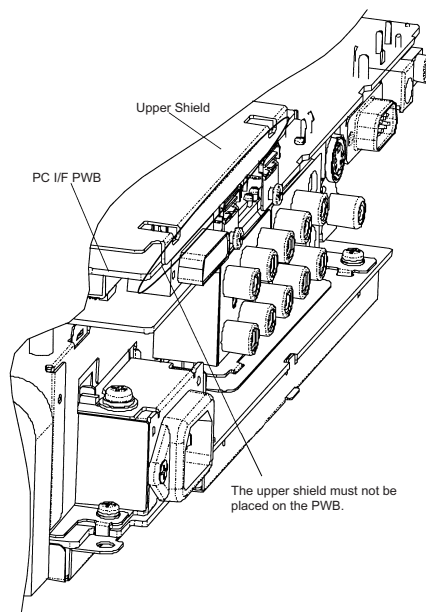
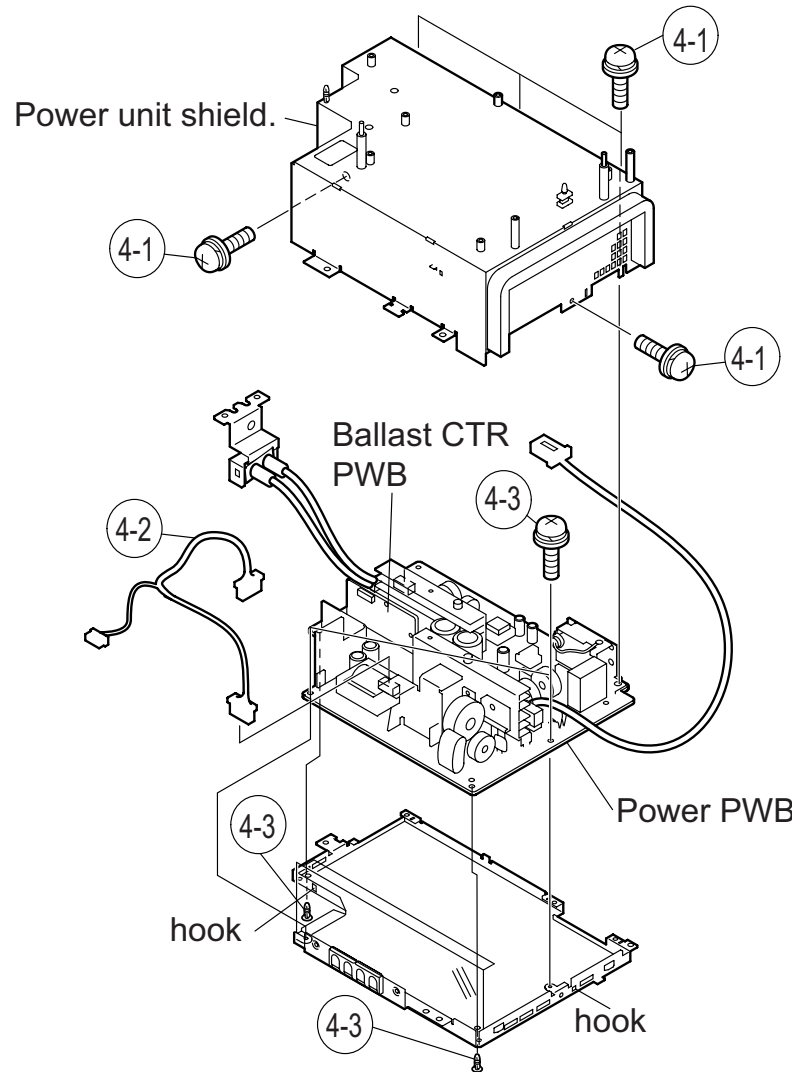


Figure 3

[5] Removing the Power unit shield assembly and Power/Ballast assembly

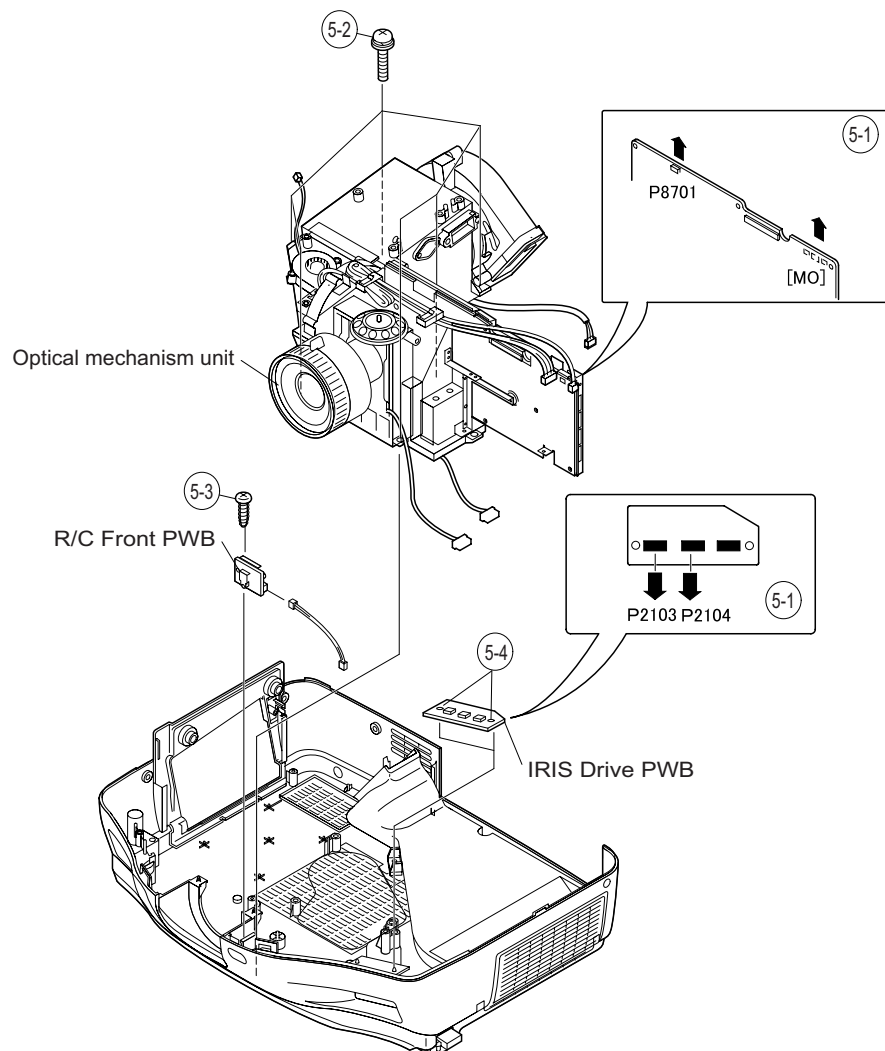
1. Remove the five screws and remove the two hooks, and detach the Power unit shield assembly.
2. Remove the one connector.
3. Remove the two screws and remove the two hooks, and detach the Power/Ballast assembly.

NOTE: Order the Power/Ballast assembly when replacing the ballast unit.



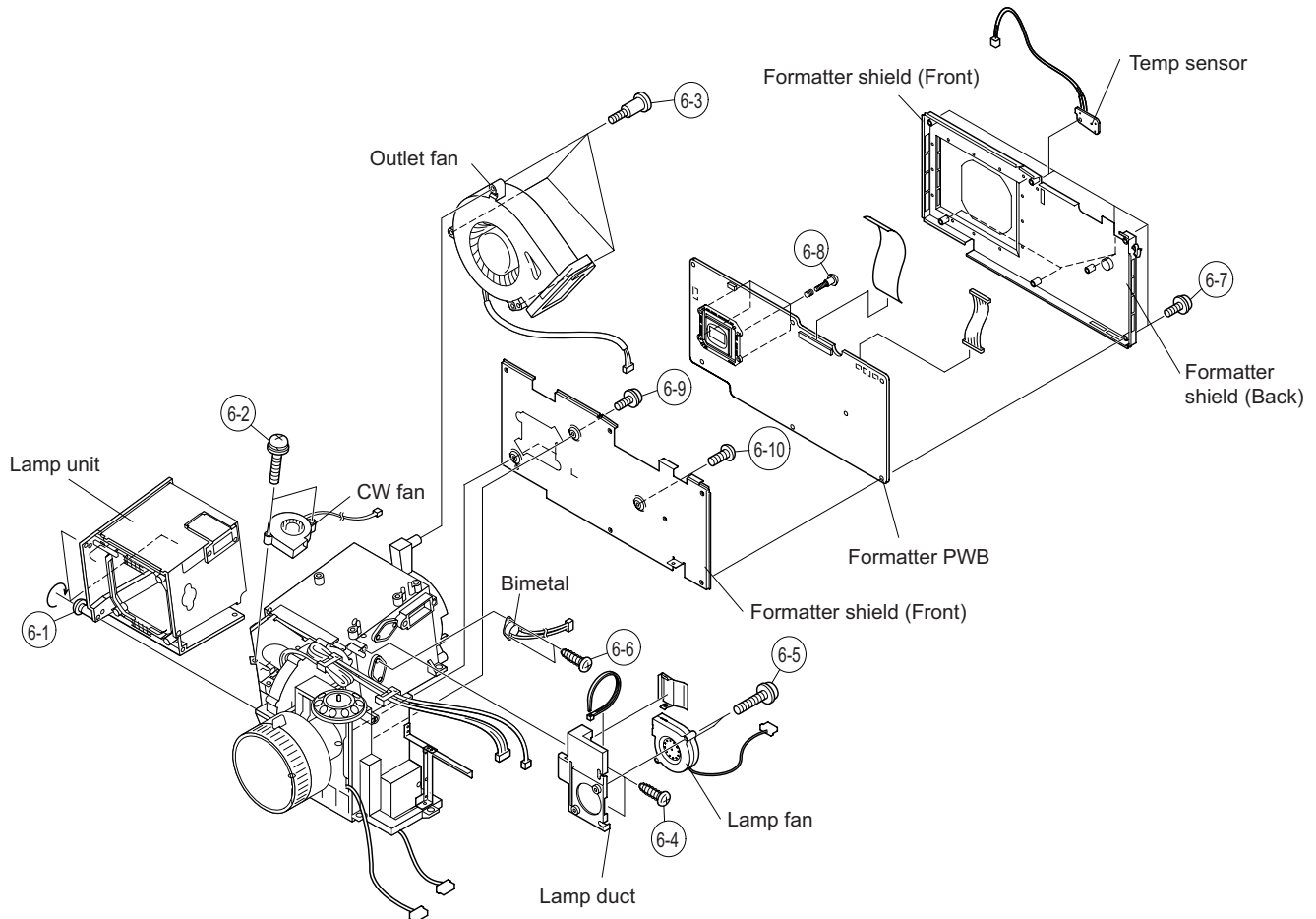
[6] Removing the Optical mechanism unit, R/C Front PWB and IRIS Drive PWB

1. Remove the four connectors.
2. Remove the six screws and detach the Optical mechanism unit.
3. Remove the one screw and the one connector. Detach the R/C Front PWB.
4. Remove the two hooks and detach the IRIS Drive PWB.



[7] Removing the Lamp unit, CW fan, Outlet Fan, Lamp duct, Lamp fan, Bimetal, Temp sensor and Formatter unit.

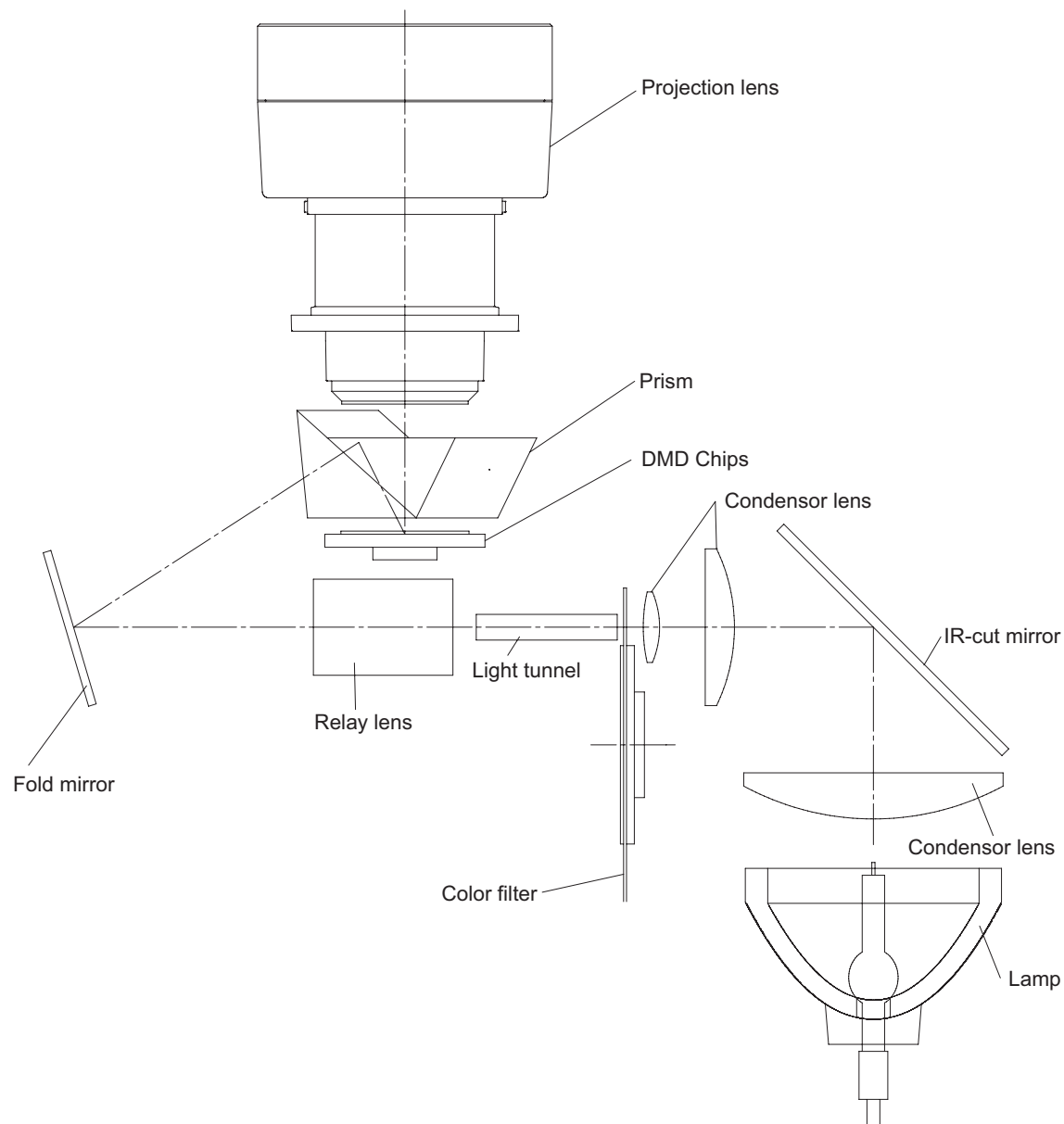
1. Remove the three screws and detach the Lamp unit.
2. Remove the two screws and detach the CW fan.
3. Remove the three screws and detach the Outlet fan.
4. Remove the two screws and detach the Lamp duct.
5. Remove the two screws and detach the Lamp fan.
6. Remove the two screws and detach the Bimetal.
7. Remove the seven screws and detach the Temp sensor and Formatter shield (Back).
8. Remove the four screws and detach the Formatter PWB.
9. Remove the two screws.
10. Remove the one screw and detach the Formatter shield (Front)



CHAPTER 3. THE OPTICAL UNIT OUTLINE

[1] THE OPTICAL UNIT OUTLINE

1. Layout for proper setup of the optical components and parts (top view)

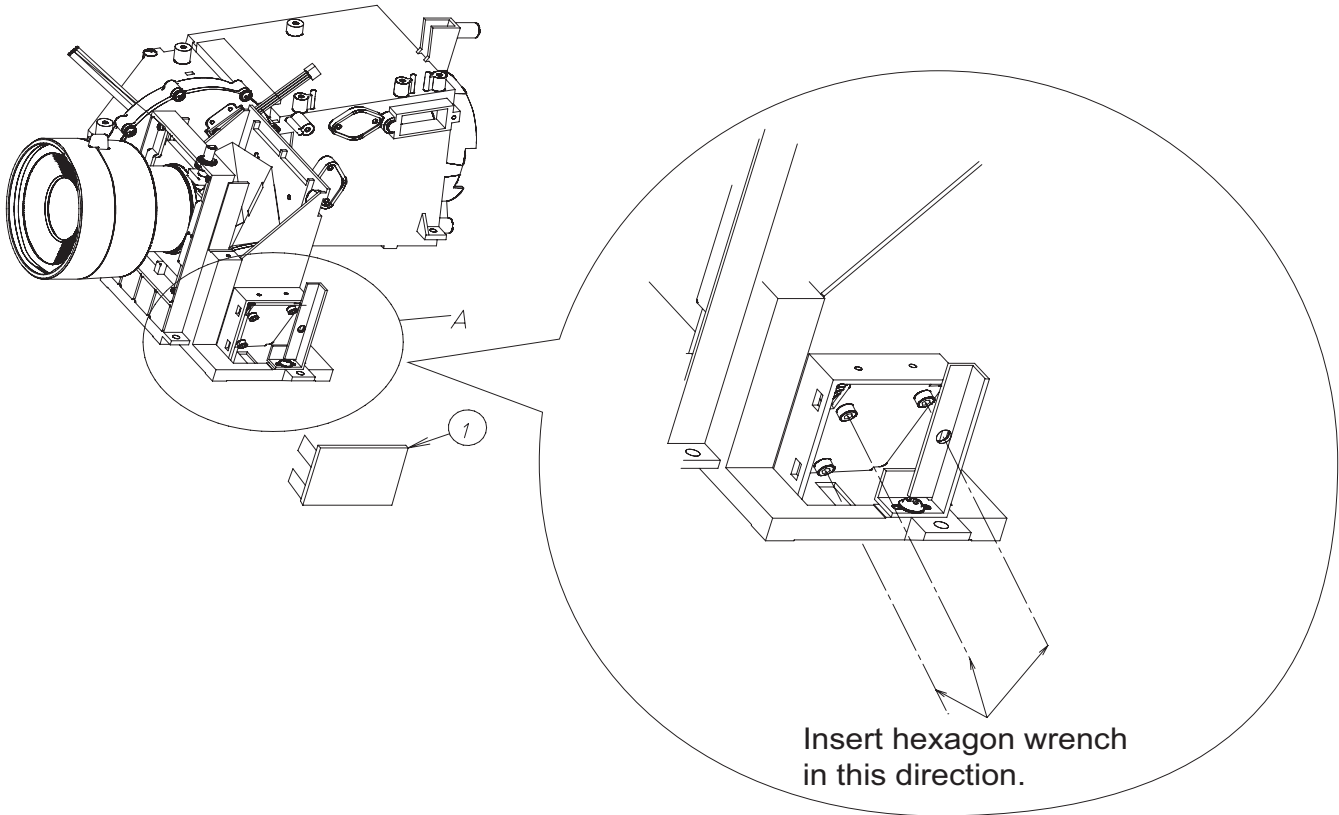


Item	Descriptions
1. Lamp	The DC Light source lamp with parabola reflector.
2. Condensor lens, IR-cut mirror and light- tunnel	The condensor lens leads the light generated from the lamp to the end surface of the light-tunnel through the IR-cut mirror. The IR-cut mirror is set in this unit to eliminate the excessive heat by the lamp energy.
3. Color filter	This color filter separates the white light into the 3 colors R,G and B. A photo-sensor should be set in this unit to detect the transition timing properly between color filters. The maximum rotating speed is 9000rpm.
4. Relay lens and fold mirror	This unit leads the illumination spot to effective area on DMD.
5. Prism	This prism also leads the illumination spot to effective area on DMD and at the same time leads the reflection lights on the DMD to the projection lens.
6. DMD chip	This chip turns on and off in projection to each color component per dot depending on the input source.
7. Projection lens	This lens enlarges and projects the incidend light coming from the DMD.

2. Adjusting the mirrors

Make adjustment by the indication territory on the screen to prevent the circumference of the screen from getting dark because a lighting range deviated.

1. Remove the top body so that the optical unit may be seen. Display white only screen on the screen.
2. Detach the mirror adjustment part cover ① on the bottom right of the projection lens.
3. Turn three screws with special hexagon wrench (9HPH10XL120) and adjust so that a part of the screen may not get dark because a lighting range deviated
4. Mount the adjustment part cover ①.
5. Mount the top panel.



Expansion figure of part A

3. Adjusting the back focal distance after replacing the projection lens

NOTE: A piece of temporary tape is attached on the focus ring that comes with the replacement projection lens. Keep this tape in place until the finish of the adjustment.

1. Provide a distance of 2.4 m between the set and the screen and adjust the zoom knob to "wide end".
2. Adjust the lens shift until the projection lens comes to the same level as the center of the screen.
3. Detach the optical unit top cover A from behind the projection lens.
4. Loosen the four hex screws B in the back of the projection lens.
5. Insert the adjustment screwdriver C (9EVDRIVERZ9000) in the hole D at the back of the lens. Put the center of the screen in the best focus. (Preferably feed the signal for 1-dot white crosshatch pattern or 1-dot white dot pattern on black background.)
6. Tighten the four hex screws B to the torque of 0.3 Nm (3.06 kgfcm), and apply screw loctite to them.
7. Peel the temporary tape off the focus ring of the projection lens.
8. Attach the optical unit top cover A back into position. Finally fix the two screws E and apply screw loctite to them.

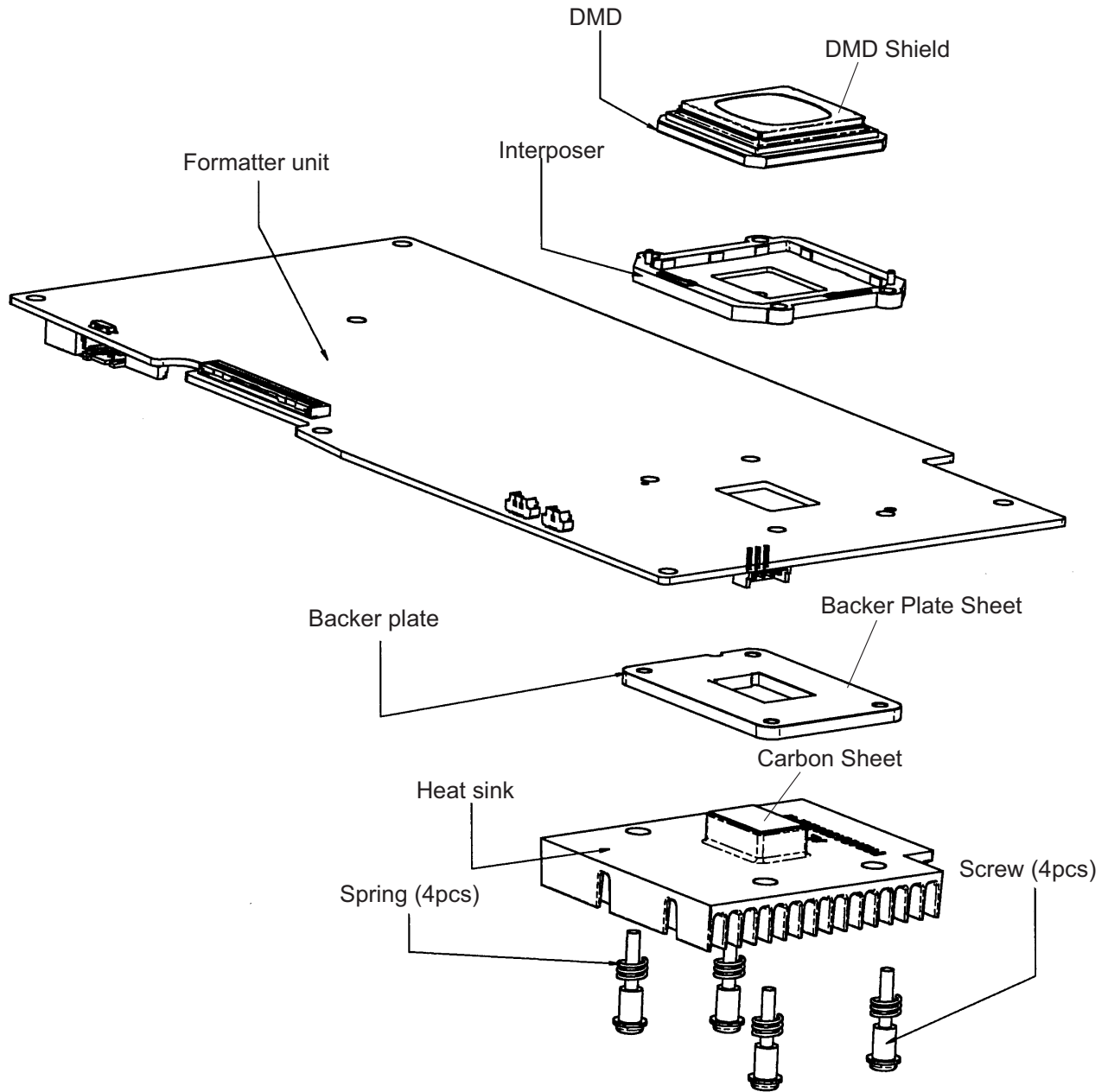
4. Joint of DMD and the unit

Wipe to clean the contamination of the PWB contacting part (gold plating part) with ethanol.

Set the position of the interposer with DMD attached to the optical unit, and then put the unit PWB on the interposer.

Sandwich the unit PWB and the back plate with the heatsink from the reverse side of the unit PWB and tighten with screws and springs.

The tightening torquus is 0.45 ± 0.05 Nm (4.5Kgfc $\cdot$ m)

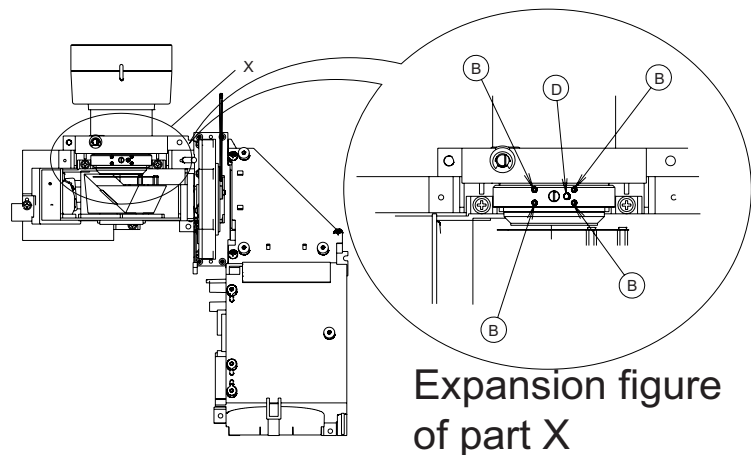
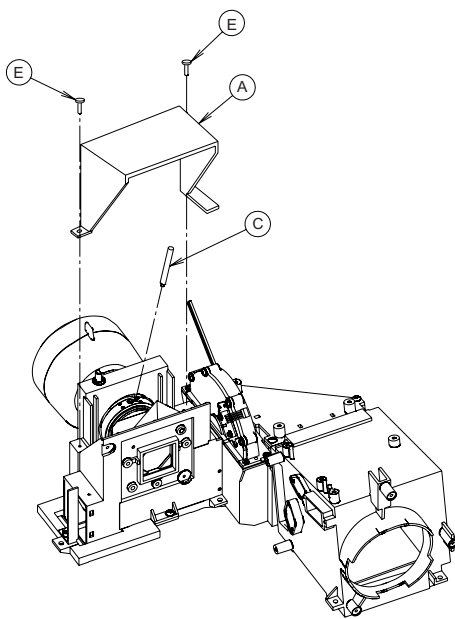


5. When the DMD unit has been replaced

NOTE: DMD chip and Formatter PWB are supplied at the same time, and an exchange only with DMD isn't done. Refer to "REMOVING OF MAJOR PARTS" when exchanging Formatter PWB.

There is no need to readjust the back focal distance of the projection lens. If focusing is noticeably poor, however, make this readjustment.

1. Provide a distance of 2.4 m between the set and the screen.
2. Adjust the lens shift until the projection lens comes to the same level as the center of the screen.
3. Detach the optical unit top cover A from behind the projection lens.
4. Loosen the four hex screws B in the back of the projection lens.
5. Adjust the zoom knob at the front of the projection lens to "tele end" and ensure good focusing.
6. Then adjust the zoom knob at the front of the projection lens to "wide end".
7. Insert the adjustment screwdriver C (9EVDRIVERZ9000) in the hole D at the back of the lens. Put the center of the screen in the best focus. (Preferably feed the signal for 1-dot white crosshatch pattern or 1-dot white dot pattern on black background.)
8. Move the zoom knob from "wide end" back to "tele end" and see if focusing is ensured. If not, repeat the above steps (5), (6) and (7) until the best focus is achieved.
9. Tighten the four hex screws B to the torque of 0.3 Nm (3.06 kgfcm), and apply screw loctite to them.
10. Attach the optical unit top cover A back into position. Finally fix the two screws E and apply screw loctite to them.



CHAPTER 4. ELECTRICAL ADJUSTMENT

[1] ELECTRICAL ADJUSTMENT

The unit has been adjusted optimally at the time of factory shipment. However, if the screen position is deviated or when exchanging parts, make an adjustment as shown below.

- Turn on the power (lamp on state) and wait for 15 minutes for aging.
- Enter the adjustment process mode with SW2002 (tact switch) on the main unit.
- Select the group to adjust with the DOWN (▼) key or the UP (▲) key on the remote control, and enter the adjustment item with the ENTER (⏏) key on the remote control.
- Select the adjustment item with the DOWN (▼) key or the UP (▲) key on the remote control.
- Use the LEFT (◀) key or the RIGHT (▶) key for adjustment.
- To return from the adjustment item to the adjustment group, use the UNDO (⏮) key.
- To exit the adjustment process mode, execute the factory setting at the end of the adjustment.

If the factory setting is not executed, the adjusted contents are not reflected.

<Cautions for adjustment>

1. Initialization and factory setting

If the initialization S1 or the factory setting S5 of EEPROM is carried out, time for writing the data is necessary.

When executing EEPROM initialization S1 or S5, the OSD of adjustment process mode disappears, and the OSD of SET1 or SET5 appears. After completing setting, the input is switched automatically (SET1: DVI A-RGB input, SET5: C1). Never turn off the power until the input is switched (a little less than 1 minute).

No.	Adjusting point	Adjusting conditions	Adjusting procedure
1	EEPROM initialization	1. Turn on the power (with the lamp on) and warm up the set for 15 minutes.	1. Make the following settings. Press SW2002 to enter the process mode, and execute S1 to initialize EEPROM. After executing S1, the input switches to DVI-AnalogRGB. S1: Main and Sub EEPROM initialization S2: Sub EEPROM initialization
2	MODEL setting and model name check	Process menu: LINE Select MODEL.	MODEL 0 DT5000 1 XVZ20000 2 XVZ21000 After setting, check that the model name displayed in the first line of process menu is the same as the setting.
3	Color wheel sequence setting	Check the number marked at CW. Adjustment group: DLP Adjustment item: SEQUENCE Initial value: 2	Color wheel number: SEQUENCE number ① 1 ② 2 ③ 3
4	Color wheel index adjustment	1. Adjustment device: DDP3021 2. Adjustment group: DLP 3. Adjustment item: CWINDEX Initial value: 40 The built-in pattern for INDEX adjustment is displayed.	1. Adjust the setting so that the R, G and B Ramp tone pattern should be smooth without noises. W R G B

No.	Adjusting point	Adjusting conditions	Adjusting procedure
5-1	R-bright/contrast adjustment	1. Device: AD998417 2. Adjustment group: AD (RGB) (Process gamma linkage) 3. Adjustment item: R-Bright Initial value: 40 Adjustment item: R-D Initial value: 60 4. Input terminal: DVI A-RGB (Input switching linkage) 5. Input signal: XGA Wind pattern having 100% (0.7 Vpp) R signal and 0%	1. Observe the 0% portion. 2. Vary R-Bright (increment direction), and adjust to the point reduced by 1 point from the point where red bit dropout appears. 3. Observe the 100% portion. 4. Vary R-D (increment direction), and adjust to the point raised by 2 points from the point where red bit dropout appears.
5-2	G-bright/contrast adjustment	1. Device: AD998417 2. Adjustment group: AD (RGB) (Process gamma linkage) 3. Adjustment item: G-Bright Initial value: 40 Adjustment item: G-D Initial value: 60 4. Input terminal: DVI A-RGB (Input switching linkage) 5. Input signal: XGA Wind pattern having 100% (0.7 Vpp) G signal and 0%	1. Observe the 0% portion. 2. Vary G-Bright (increment direction), and adjust to the point reduced by 1 point from the point where green bit dropout appears. 3. Observe the 100% portion. 4. Vary G-D (increment direction), and adjust to the point raised by 2 points from the point where green bit dropout appears.
5-3	B-bright/contrast adjustment	1. Device: AD998417 2. Adjustment group: AD (RGB) (Process gamma linkage) 3. Adjustment item: B-Bright Initial value: 40 Adjustment item: B-D Initial value: 60 4. Input terminal: DVI A-RGB (Input switching linkage) 5. Input signal: XGA Wind pattern having 100% (0.7 Vpp) B signal and 0%	1. Observe the 0% portion. 2. Vary B-Bright (increment direction), and adjust to the point reduced by 1 point from the point where blue bit dropout appears. 3. Observe the 100% portion. 4. Vary B-D (increment direction), and adjust to the point raised by 2 points from the point where blue bit dropout appears.
6-1	Component R-offset	1. Adjustment device: AD998417 2. Adjustment group: AD (COMP) (Process gamma linkage) 3. Adjustment item: CR-OFFSET Initial value: 50 4. Input terminal: DVI A-Component (Input switching linkage) 5. Input signal: Component 100% Ramp signal	1. Vary CR-OFFSET, and place the red line appearing near the center over the green line. 2. The line color turns yellow.
6-2	Component B-offset (Auto adjustment)	1. Adjustment device: AD998417 2. Adjustment group: AD (COMP) (Process gamma linkage) 3. Adjustment item: CB-OFFSET Initial value: 50 4. Input terminal: DVI A-Component (Input switching linkage) 5. Input signal: Component 100% Ramp signal	1. Vary CB-OFFSET, and place the blue line over the line turning yellow by CR-OFFSET adjustment. 2. The line color turns white.
6-3	Component G-bright	1. Adjustment device: AD998417 2. Adjustment group: AD (COMP) (Process gamma linkage) 3. Adjustment item: G-BRIGHT Initial value: 70 4. Input terminal: DVI A-Component (Input switching linkage) 5. Component wind pattern having 100% (0.7 Vpp) G signal and 0% 6. Perform adjustment after adjusting CR-OFFSET and CB-OFFSET.	1. Observe the 0% portion. 2. Vary G-BRIGHT (decrement direction), and the screen starts to whiten. 3. Adjust to the point where no bit dropout is found and the screen becomes completely white.

No.	Adjusting point	Adjusting conditions	Adjusting procedure
6-4	Component RGB-gain adjustment (Auto adjustment)	1. Adjustment device: AD998417 2. Adjustment group: AD (COMP) (Process gamma linkage) 3. Adjustment item: G-D Initial value: 70 4. Input terminal: DVI A-Component (Input switching linkage) 5. Component video pattern having 100% (0.7 Vpp) G signal and 0% 6. Perform adjustment after adjusting CR-OFFSET, CB-OFFSET and G-BRIGHT.	1. Observe the 100% portion. 2. Vary G-GAIN (decrement direction), and the illuminance and chromaticity start to change. 3. Adjust to the point raised by 2 points from the point where bit dropout appears on the screen.
7	White balance adjustment	1. Adjustment device: DDP3021 2. Adjustment group: DLP 3. Adjustment item: R-GAIN Initial value: 95 B-GAIN Initial value: 95 4. Input terminal: DVI A-Component (Input switching linkage) 5. Input signal: Component 75% gray signal	1. Observe the chromaticity of 75% portion using CL200. 2. Adjust the y value to adjustment chromaticity ± 0.005 with B-GAIN. 3. Adjust the x value to adjustment chromaticity ± 0.005 with R-GAIN. Adjustment chromaticity $x = 0.299 \pm 0.005$ $y = 0.316 \pm 0.005$
8	Factory setting	1. Group: SSS	1. Perform the following settings. Destination Process adjustment Remote control setting Europe: S3 Factory setting 3 North America: S4 Factory setting 4 Japan: S5 Factory setting 5 China: S6 Factory setting 6 South America: S7 Factory setting 7

Do not change the process adjustment values other than the above since they are set so that optimal images are obtained.

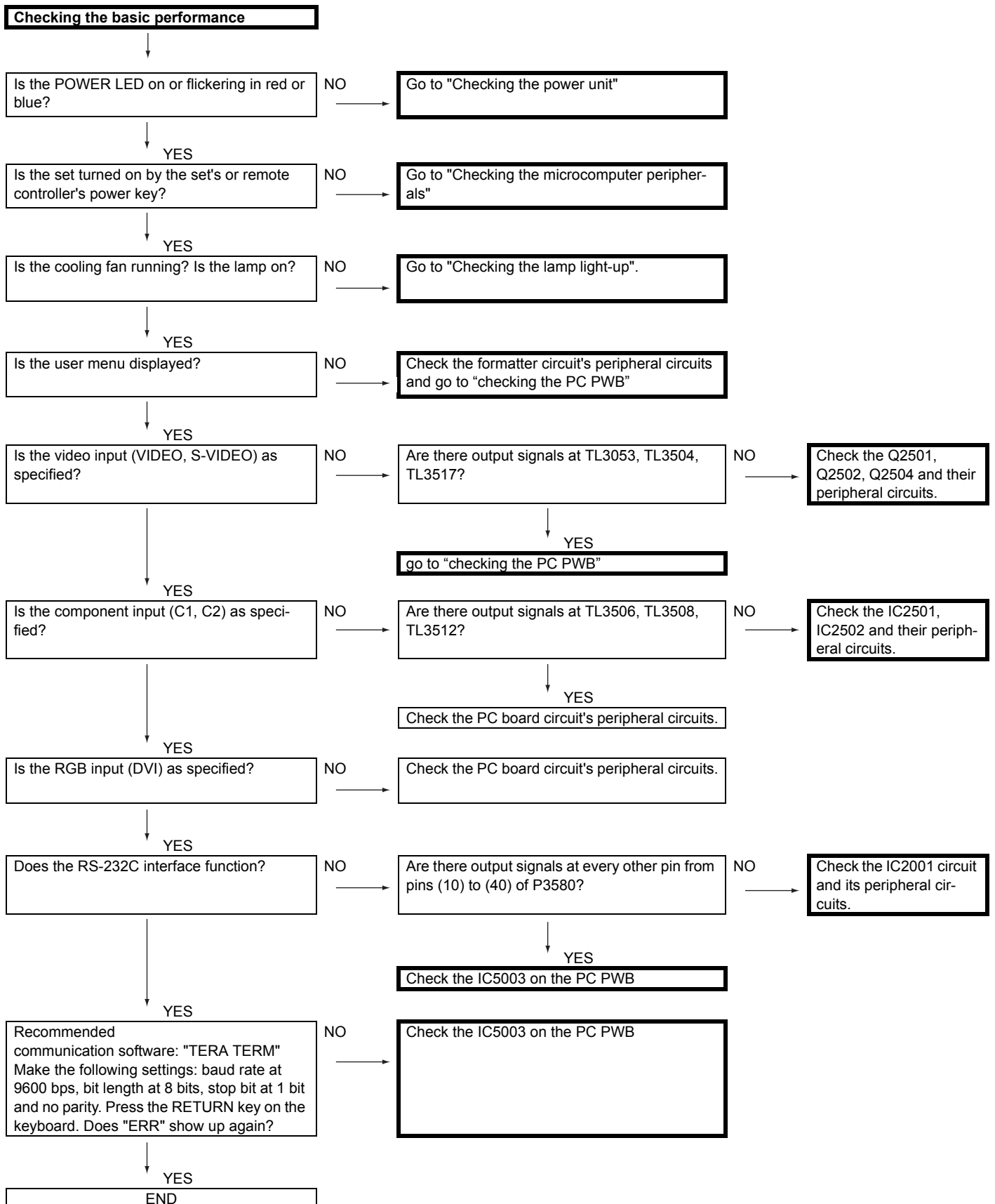
[2] Process menu

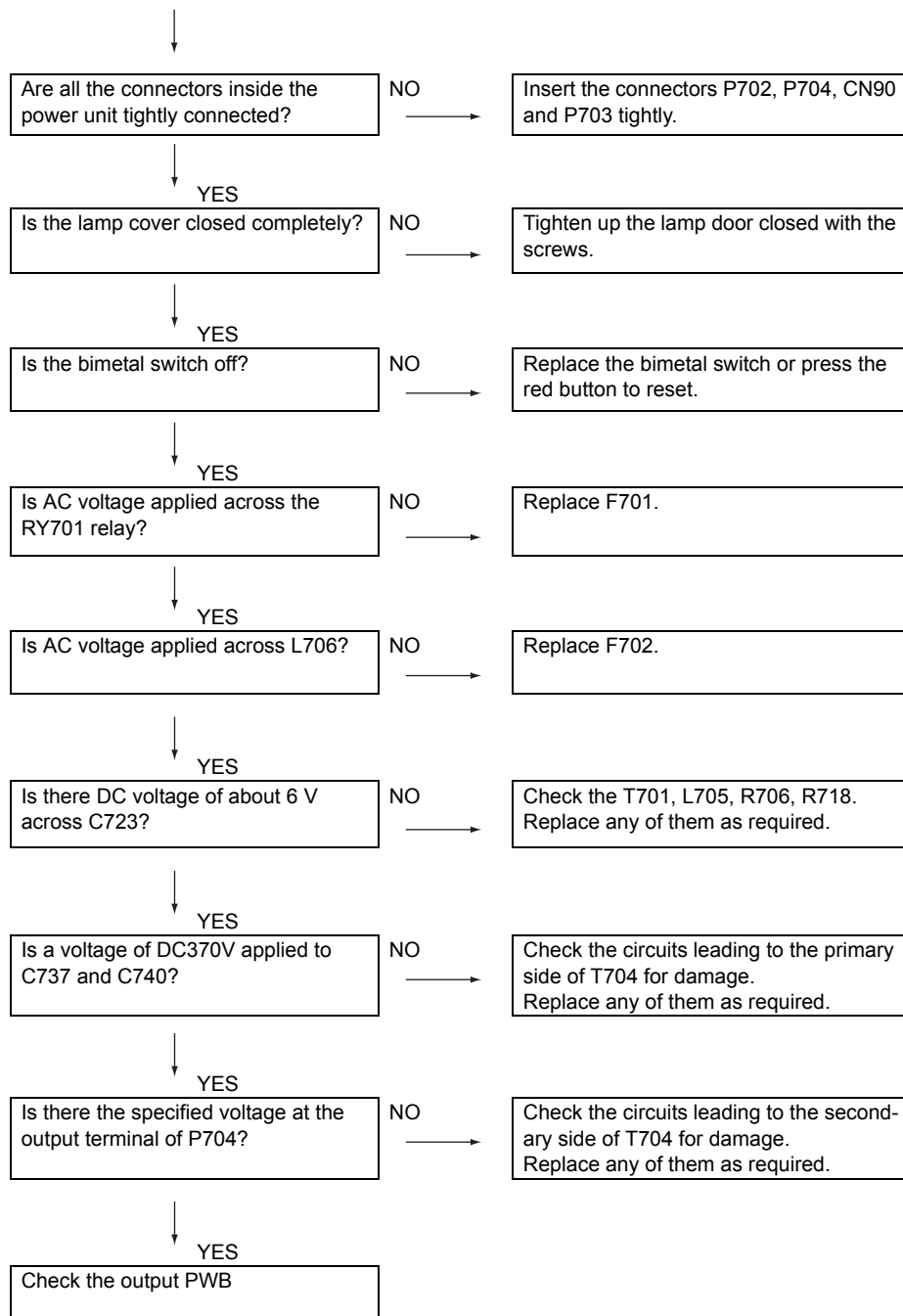
Group	Subject		
AD(RGB)	R-BRIGHT	Adjustment Value	Subject
	G-BRIGHT	Adjustment Value	Subject
	B-BRIGHT	Adjustment Value	Subject
	R-D	Adjustment Value	Subject
	G-D	Adjustment Value	Subject
	B-D	Adjustment Value	Subject
	AD-AUTO	—	No Use
AD(COMP)	G-BRIGHT	Adjustment Value	Subject
	CR-OFFSET	Adjustment Value	Subject
	CB-OFFSET	Adjustment Value	Subject
	G-D	Adjustment Value	Subject
	COMP-AUTO	0	Fixed Value
DLP	CW-INDEX	Adjustment Value	Subject
	DLP-GAMMA	1	Fixed Value
	R-BRIGHT	100	Fixed Value
	G-BRIGHT	100	Fixed Value
	B-BRIGHT	100	Fixed Value
	R-GAIN	Adjustment Value	Subject
	G-GAIN	95	Fixed Value
	B-GAIN	Adjustment Value	Subject
	CCA	0	Fixed Value
VIDEO1	SEQUENCE	Adjustment Value	Subject
	PICTURESUB	128	Fixed Value
	PICTURE	136	Fixed Value
	BRIGHT	128	Fixed Value
	TINT	128	Fixed Value
	N-COLOR	128	Fixed Value
	P-COLOR	120	Fixed Value
	SV-COLOF	5	Fixed Value
	YGC-CNT	0	Fixed Value
	SETUP	1	Fixed Value
	CTI	7	Fixed Value
	N358DLY	7	Fixed Value
	PALDLY	7	Fixed Value
	H-CENTER	128	Fixed Value
	VIDEO-AUTO	0	Fixed Value
VIDEO2	YTRAP FILNP	0	Fixed Value
	CTRAP FILNP	0	Fixed Value
	YTRAP FILS	1	Fixed Value
	CTRAP FILS	2	Fixed Value
	YCTRAP FIL	1	Fixed Value
	YCTRAP GAIN	0	Fixed Value
	FCTRAP SYS	1	Fixed Value
	PEAK GAIN	128	Fixed Value
	PEAK FIL	2	Fixed Value
	PEAK CORING	0	Fixed Value
	CR LPF	1	Fixed Value
	CB LPF	1	Fixed Value
OUTPUT	R1-GAIN	128	Fixed Value
	G1-GAIN	128	Fixed Value
	B1-GAIN	128	Fixed Value
	V-R1-GAIN	128	Fixed Value
	V-G1-GAIN	128	Fixed Value
	V-B1-GAIN	128	Fixed Value
	C-R1-GAIN	128	Fixed Value
	C-G1-GAIN	128	Fixed Value
LINE	C-B1-GAIN	128	Fixed Value
	MODEL	Setting Value	Setting Item
	TIME	—	Fixed Value
	LAMP	0	Fixed Value
	OFF	0	Fixed Value
	TEMP OFF	4	Fixed Value
SENSOR CHECK	SENSOR CHECK	—	Fixed Value

Group	Subject		
SSS	S1 (Main+Sub EEPROM Initialized)	—	
	S2 (Sub EEPROM Initialized)	—	
	S3 (EU)	—	
	S4 (US)	—	
	S5 (JPN)	—	
	S6 (CHINA)	—	
	S7 (South America)	—	
PATTERN	RGB	100% White Signal	
	RGB50	50% Gray Scale Signal	
	CROSS	Crosshatch Signal	
	STEP	Gray Step Signal	
	COLOR	Colour Bar Signal	
	RAMP	Lamp Signal	
	INDEX PATTERN	Index Adjustment Signal	
CVIC	ENHANCED SD	—	Fixed Value
	ENHANCED HD	—	Fixed Value
	DNR	—	Fixed Value
	MNR SD	—	Fixed Value
	MNR HD	—	Fixed Value
	UNVEIL	—	Fixed Value
	ACC	—	Fixed Value
	OSD DIMMER	—	Fixed Value
	CMS HUE	—	Fixed Value
	CMS SAT	—	Fixed Value
	CMS VAL	—	Fixed Value
	GAMMA POS	—	Fixed Value
SPECIAL	IPL	—	
		—	
	E2PROM	—	
	ADR RD/WR	—	
	PRG VER.	—	
		—	
	SUB VER	—	
	FMT VER.	—	

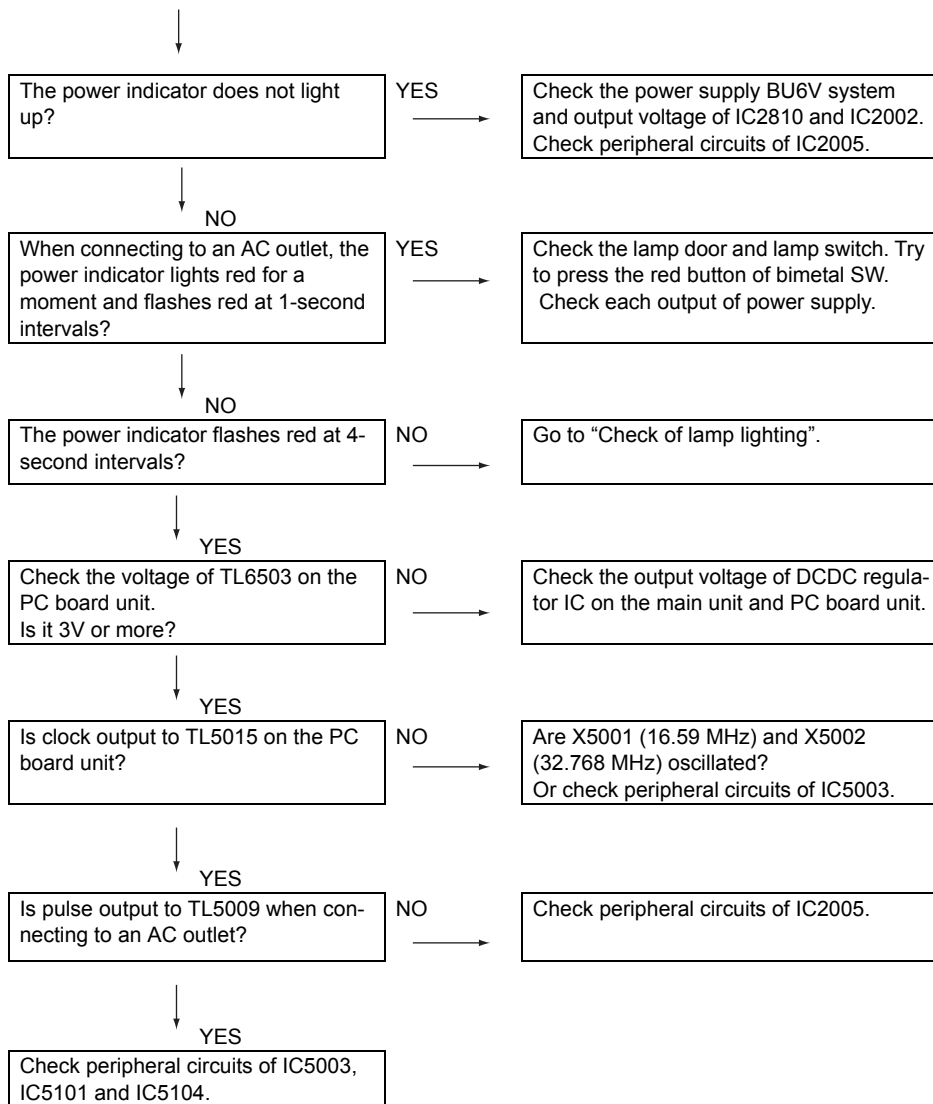
CHAPTER 5. TROUBLE SHOOTING TABLE

[1] TROUBLE SHOOTING TABLE

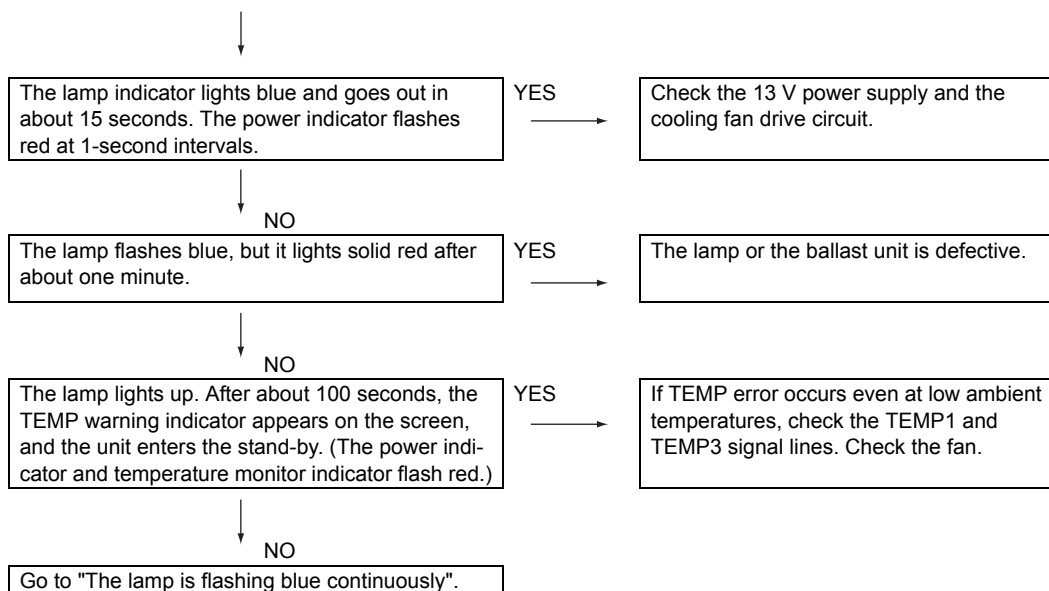


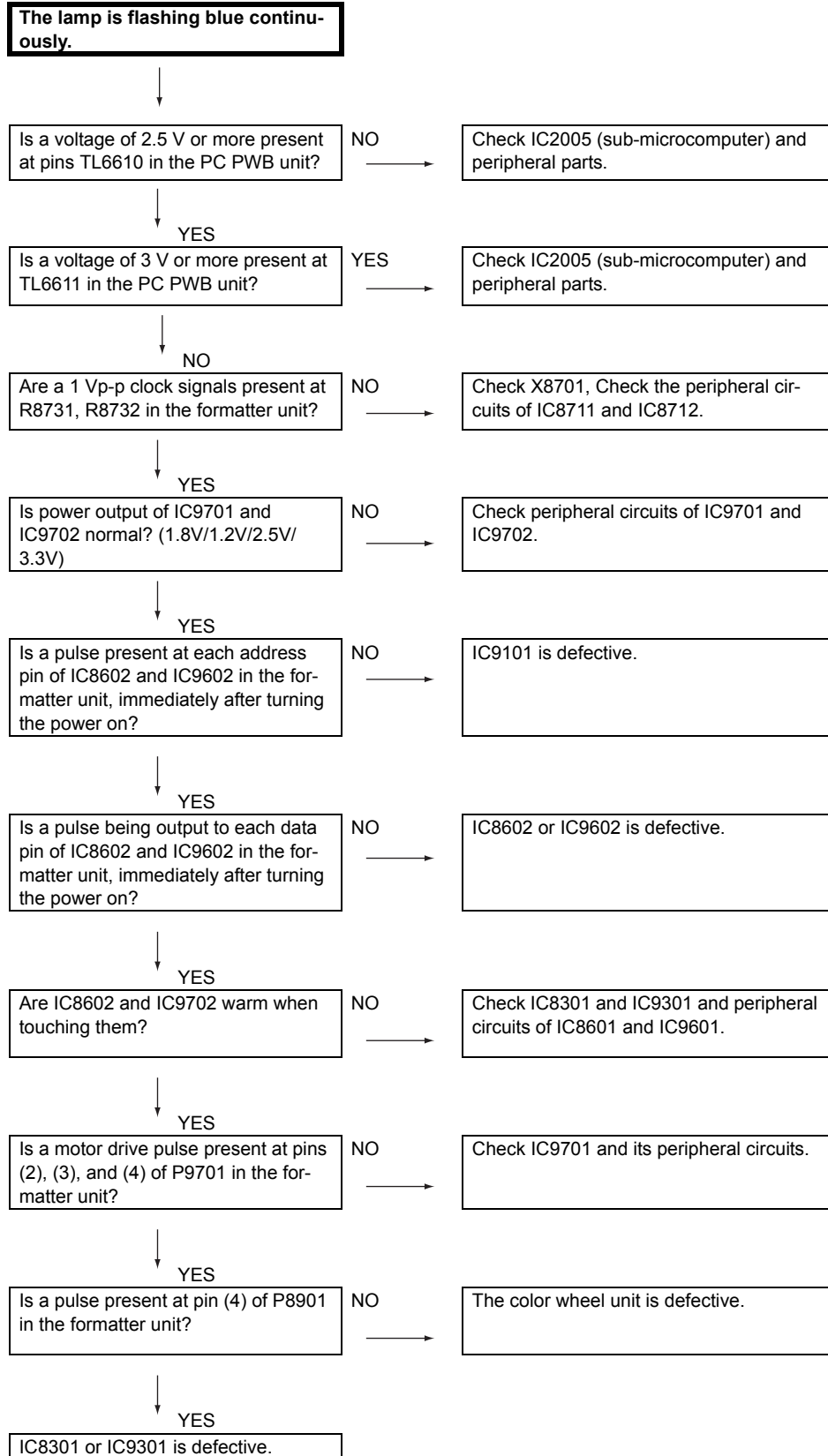
Checking the power unit

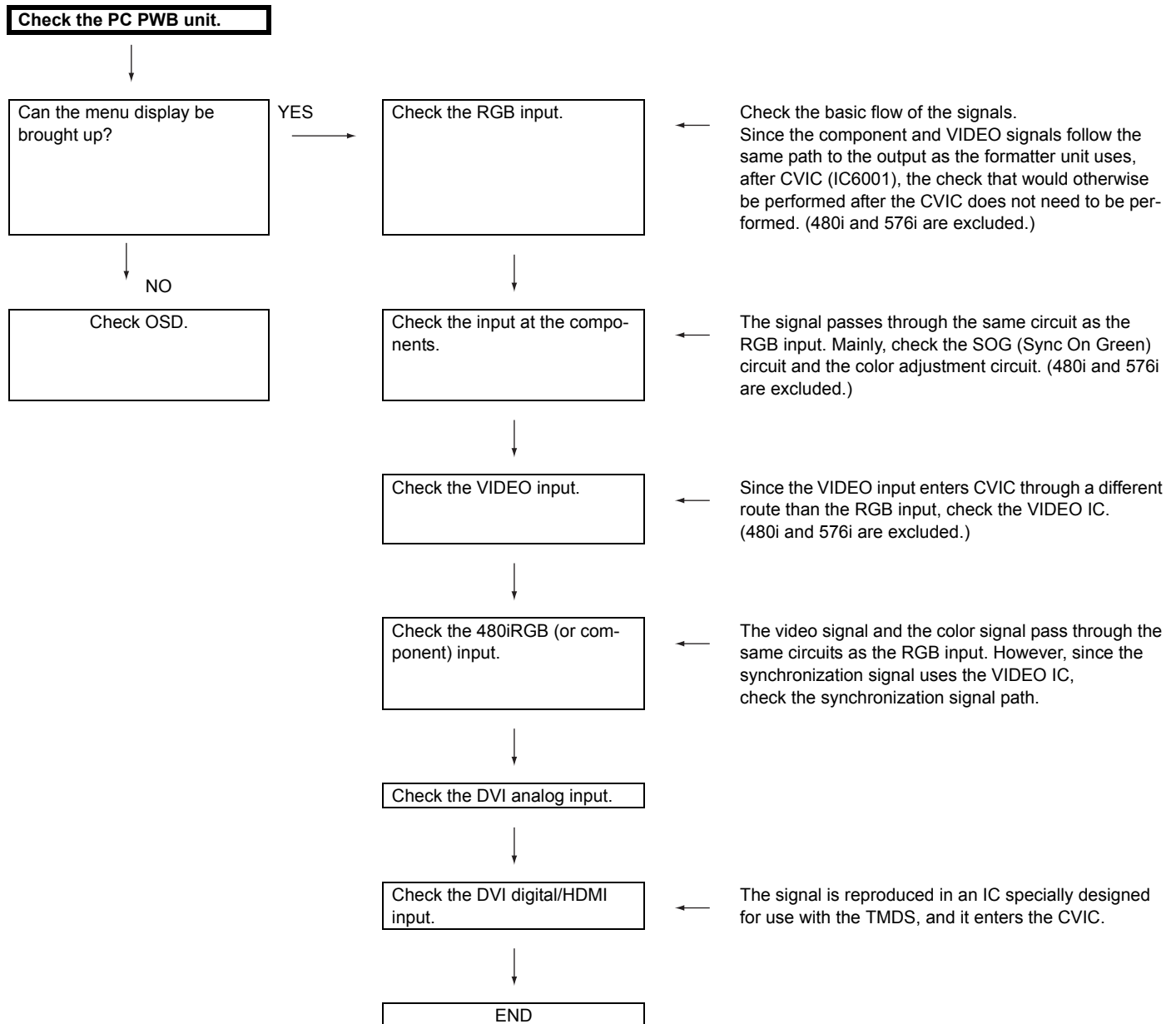
Check of the microprocessor's peripheral circuits

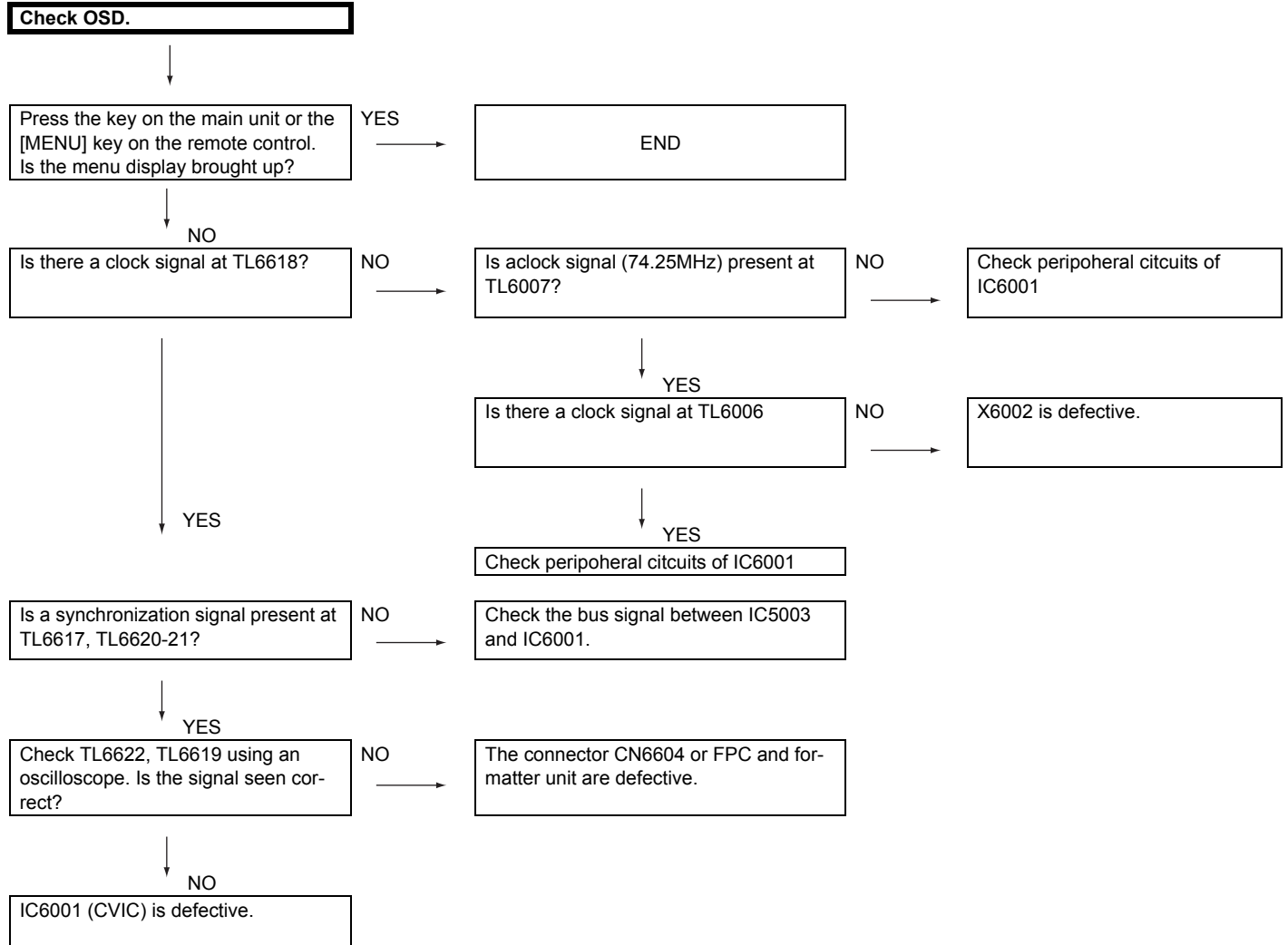


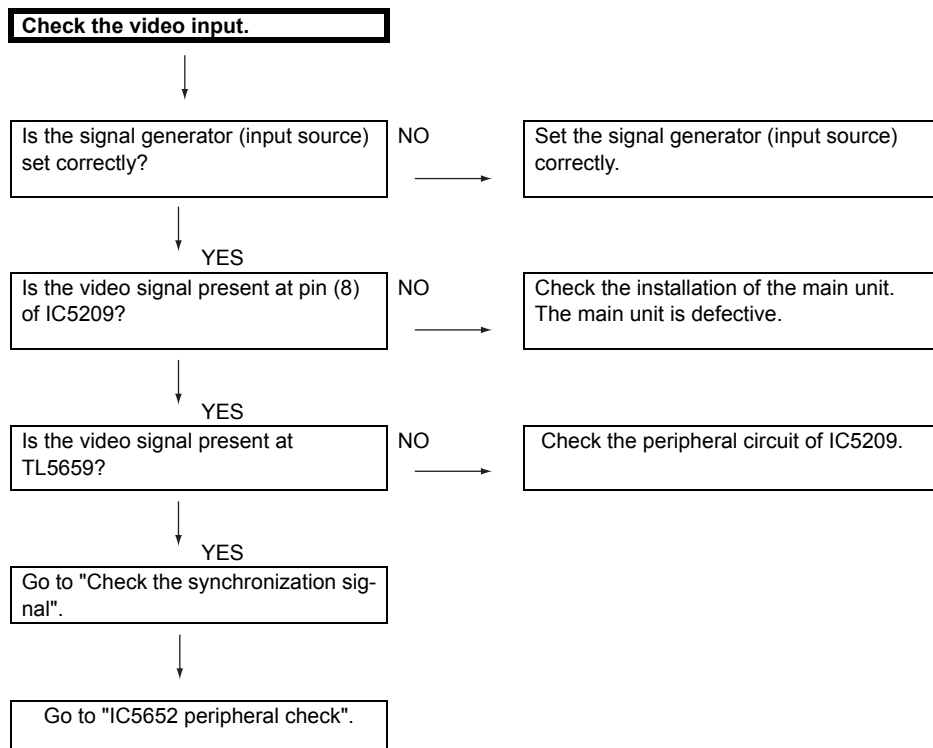
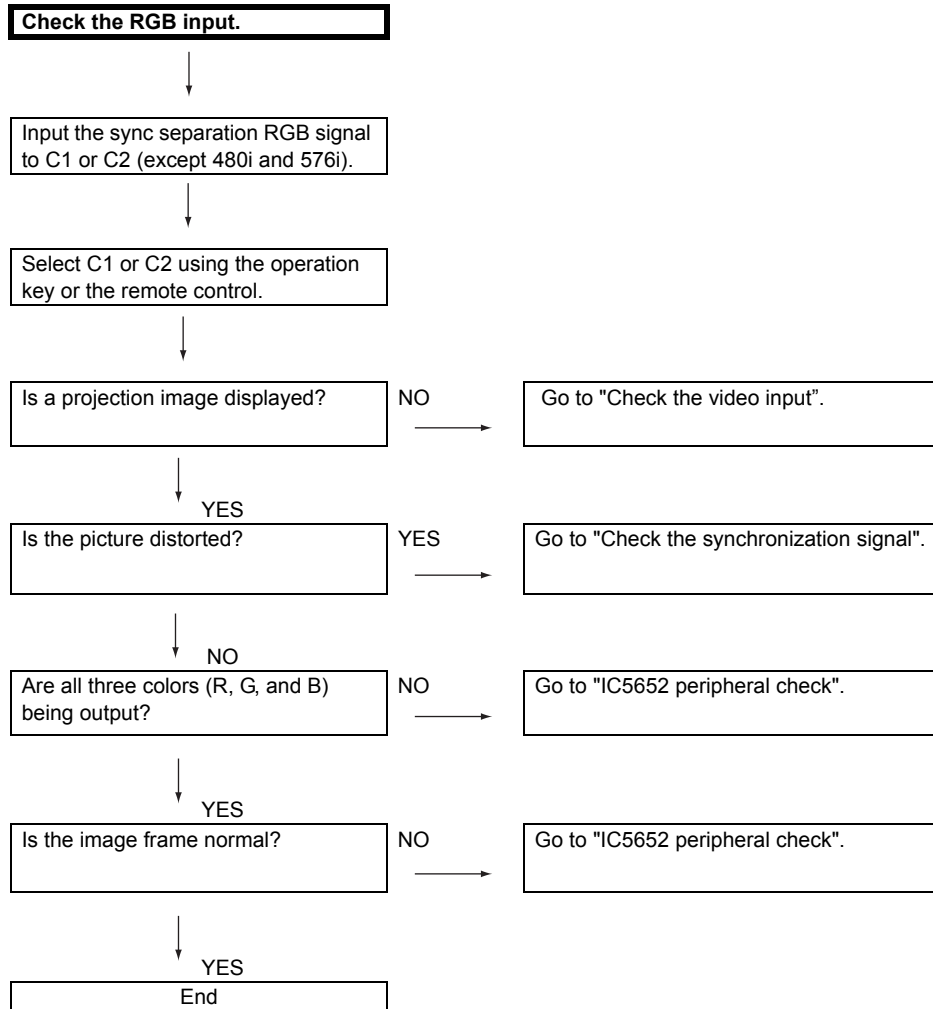
Check of lamp lighting



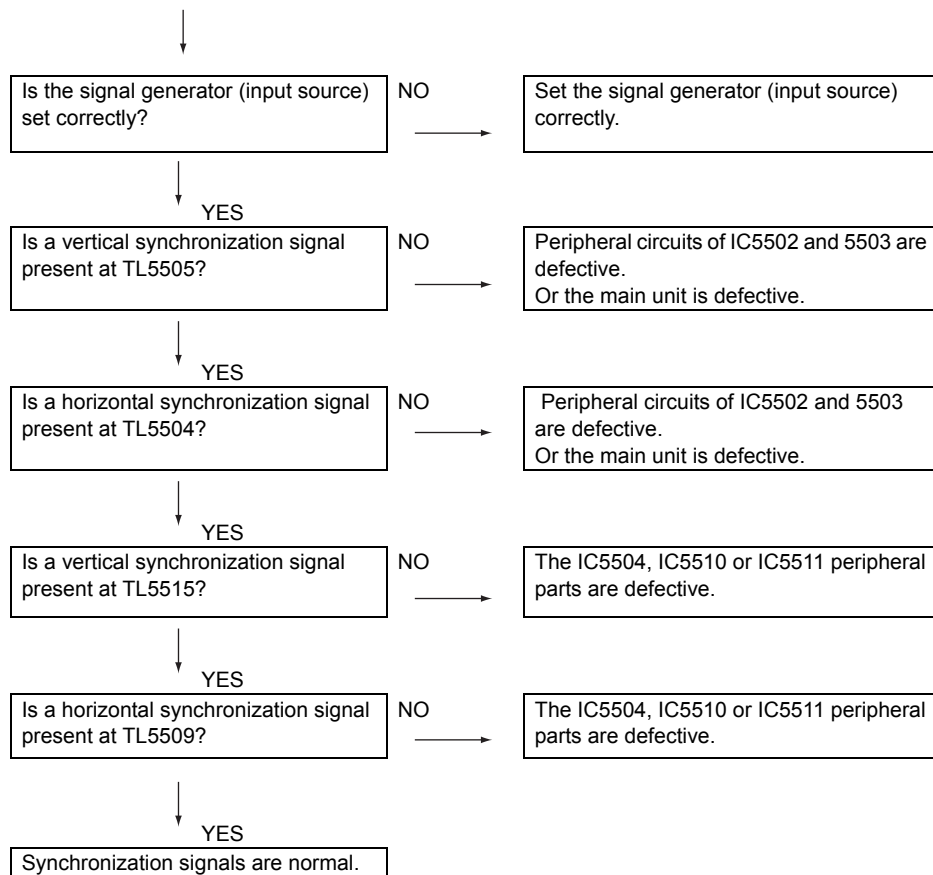




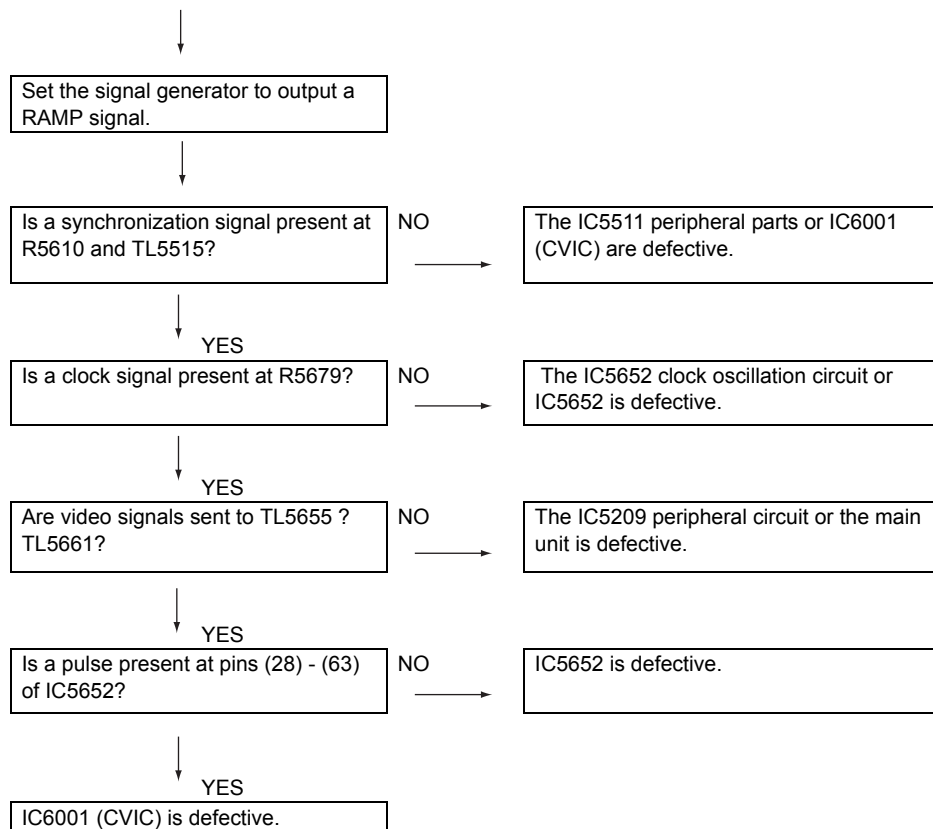


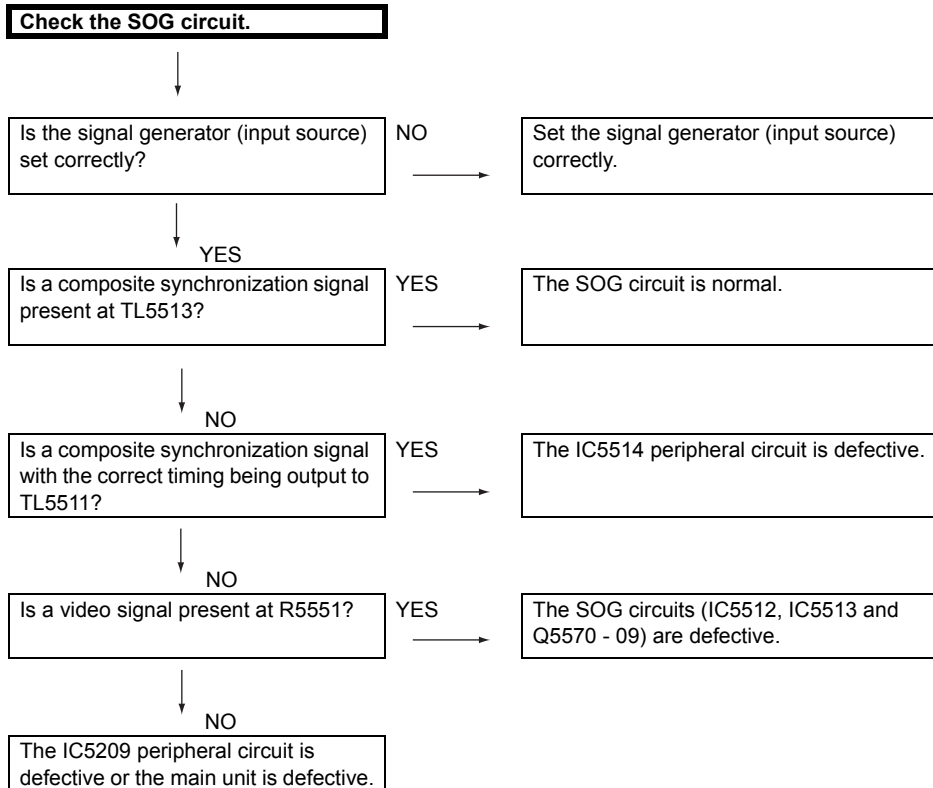
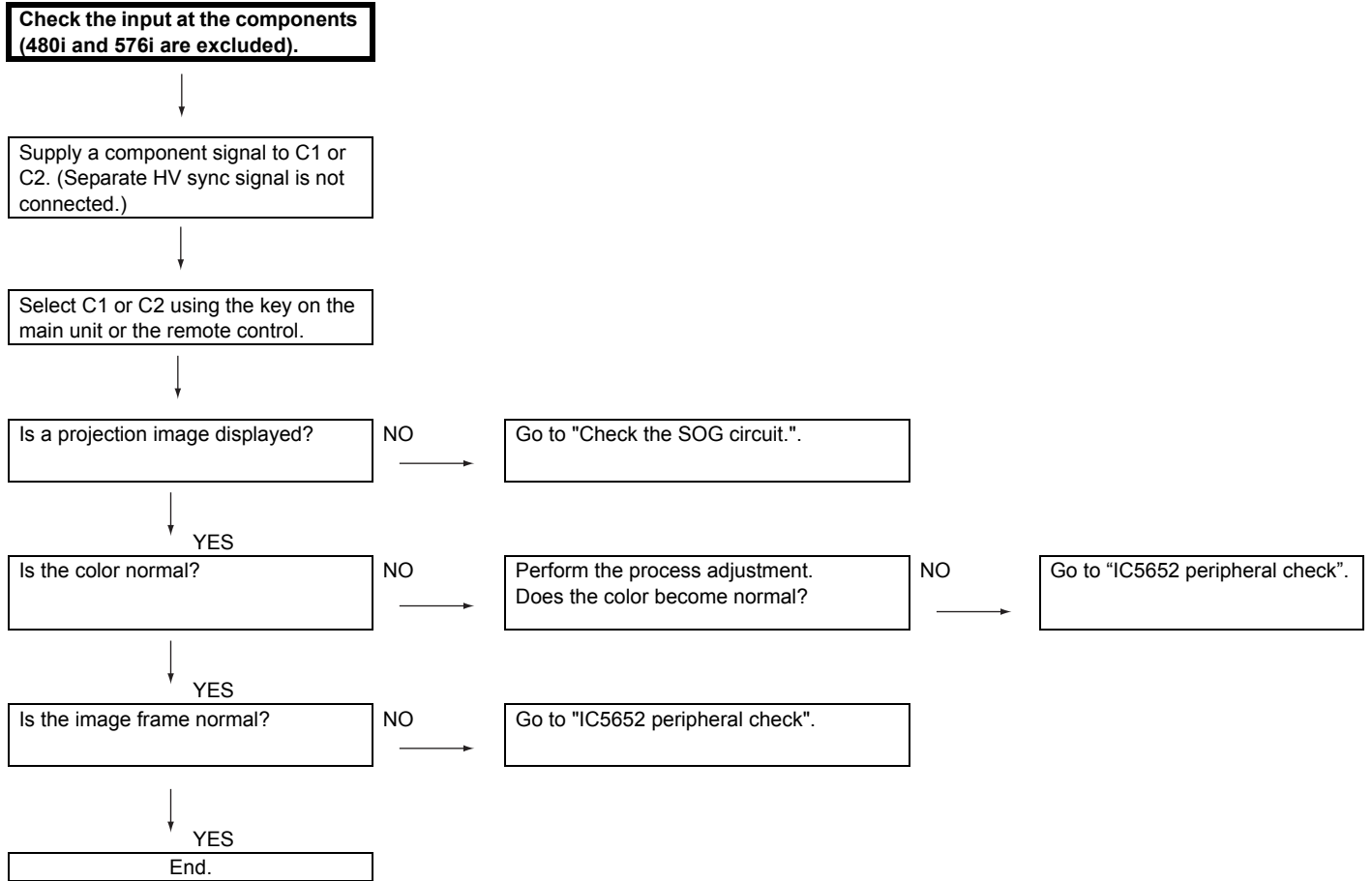


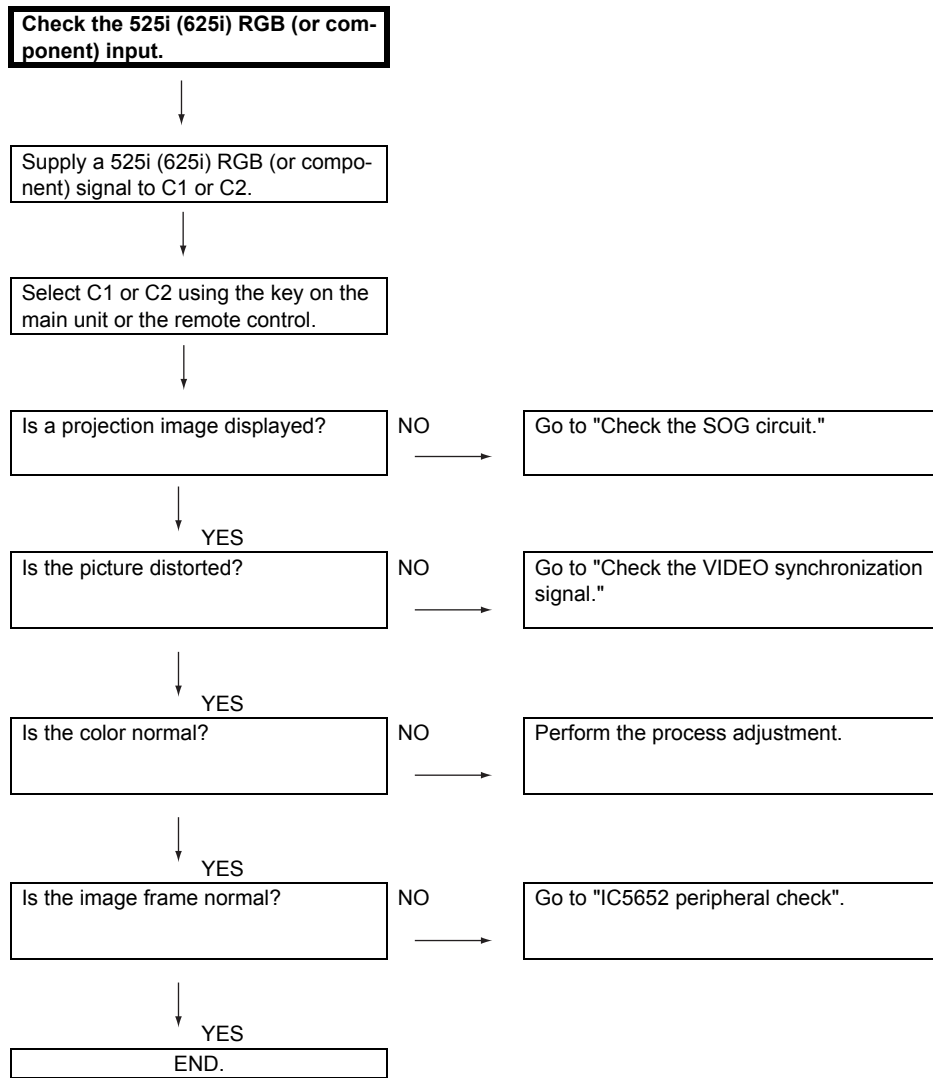
Check the synchronization signal.

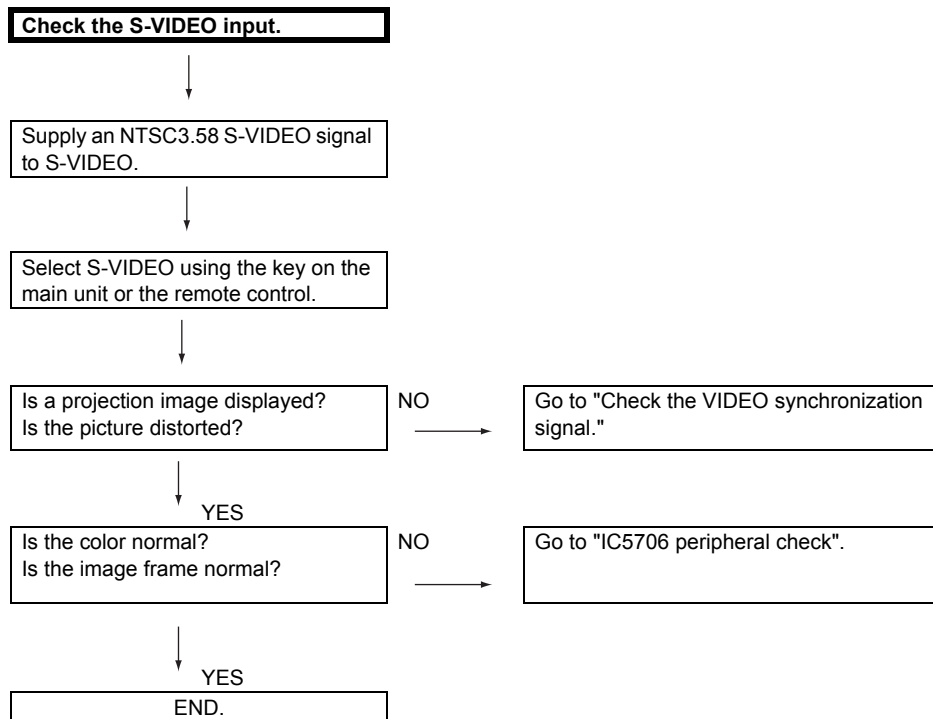
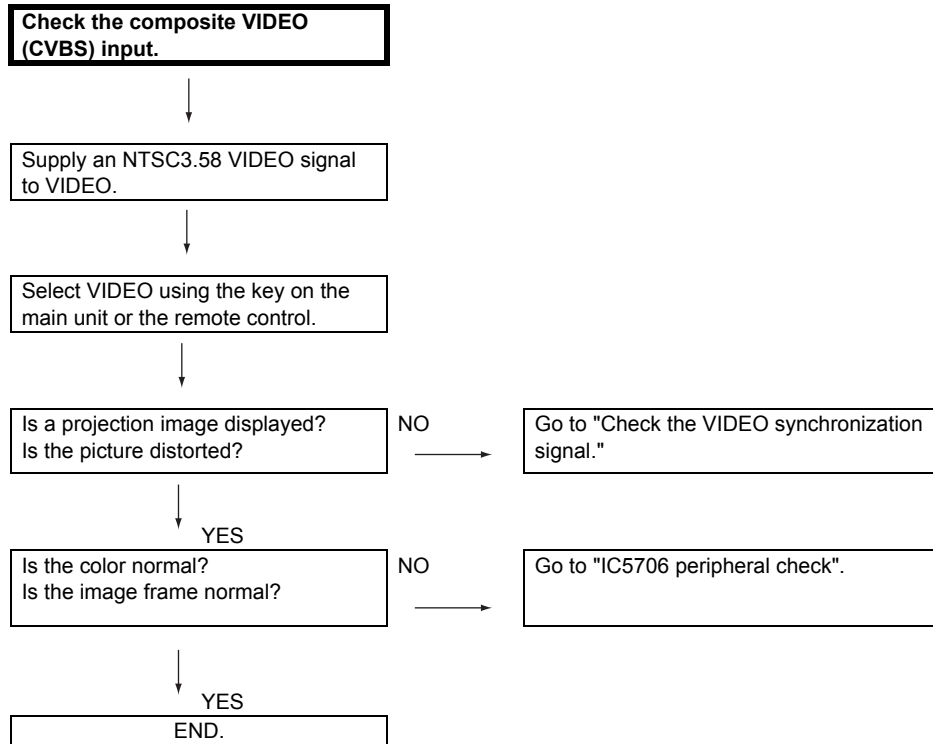


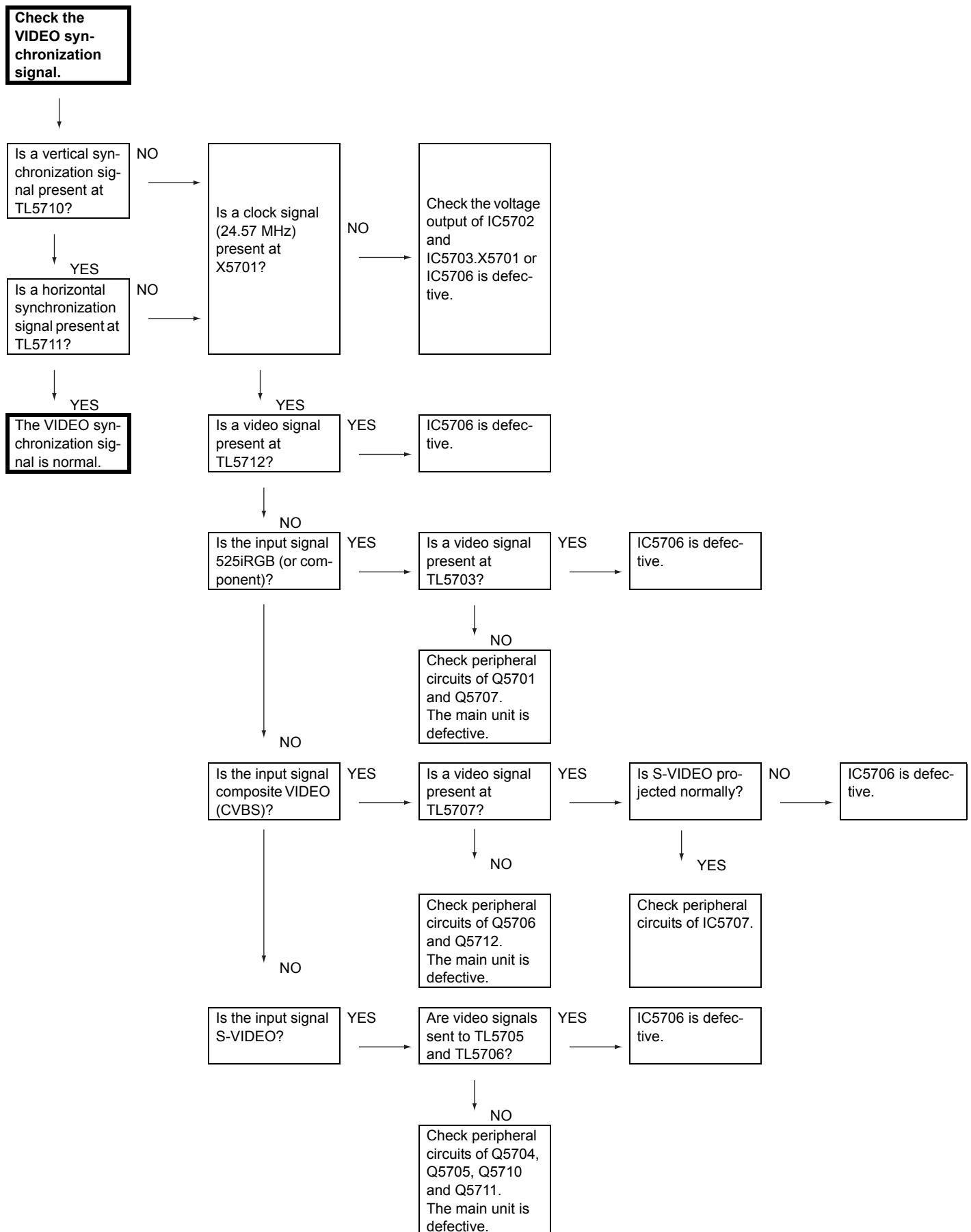
IC5652 peripheral check

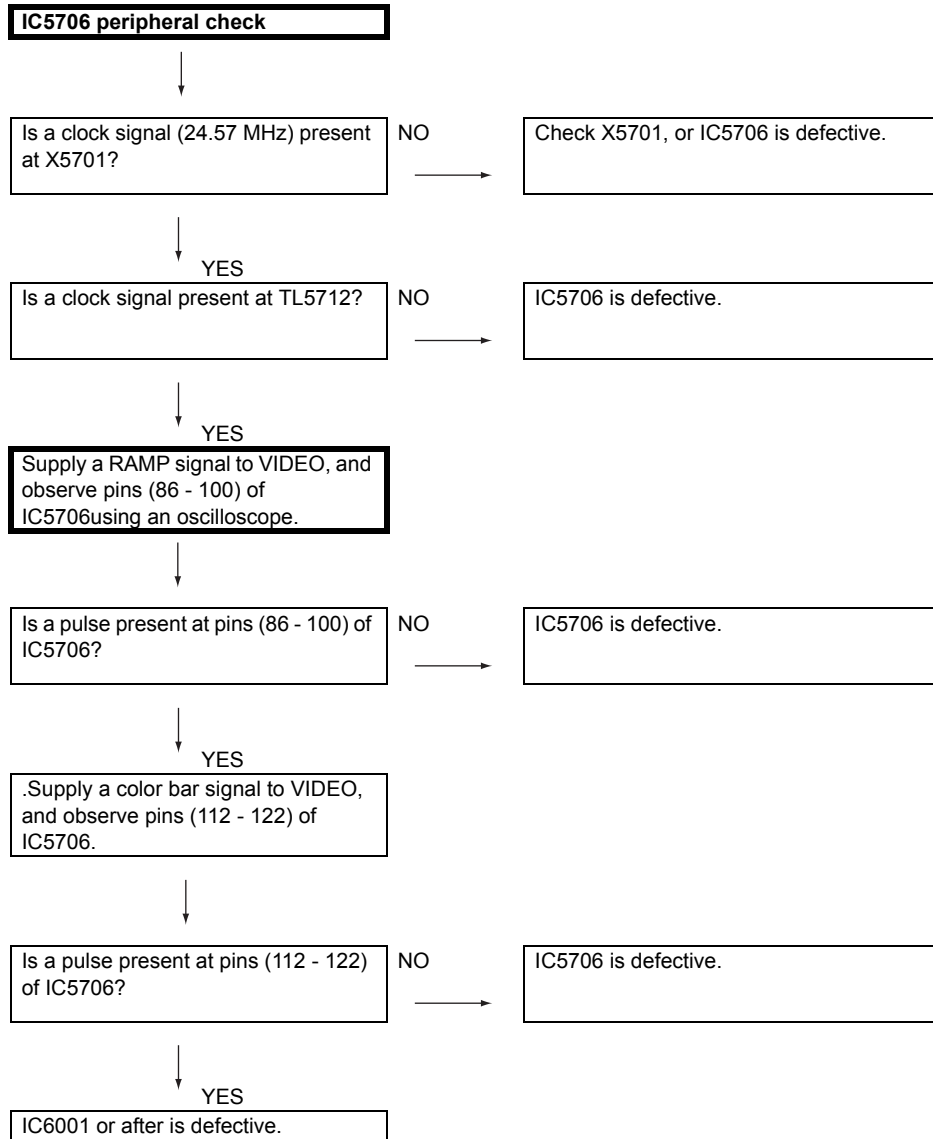


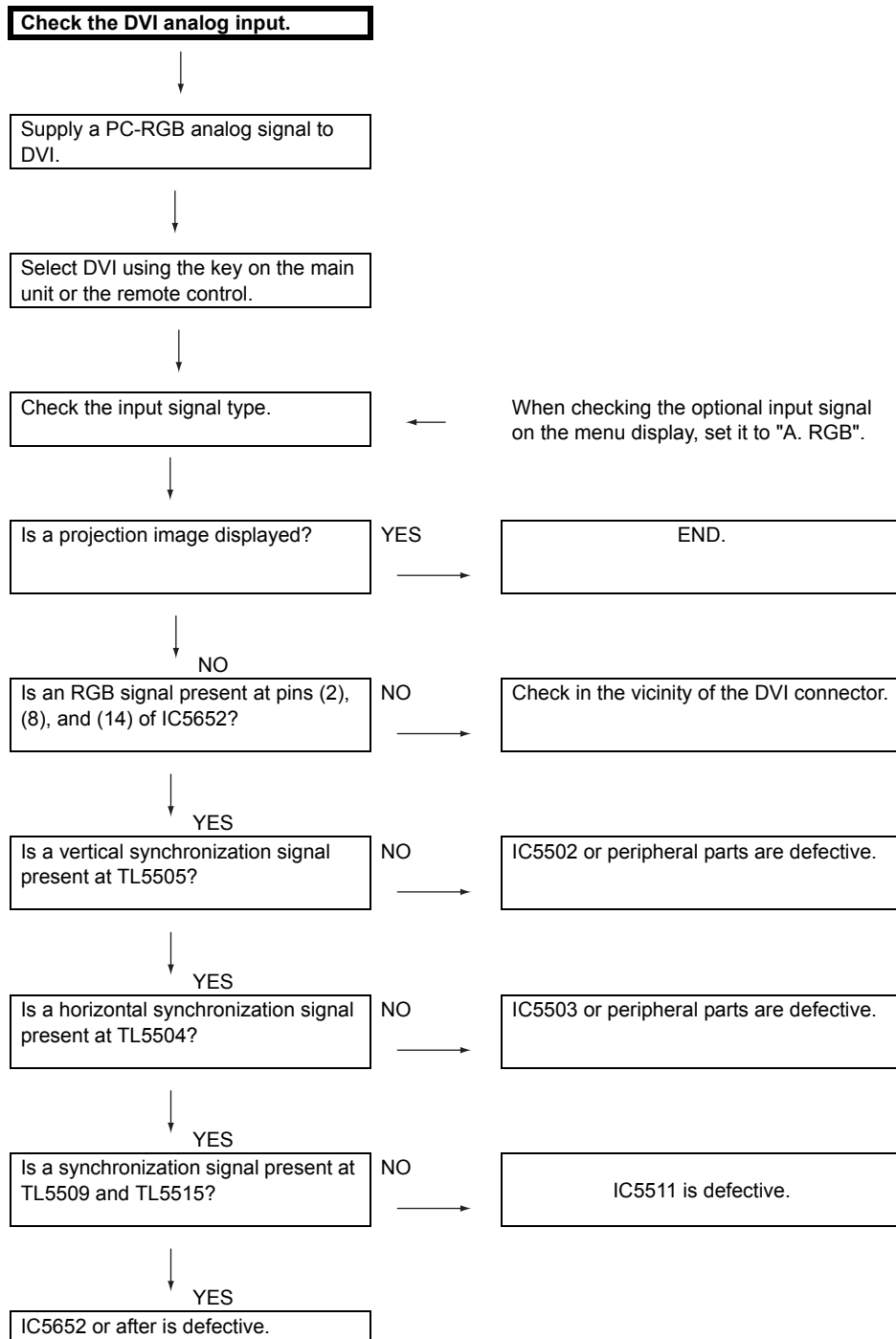


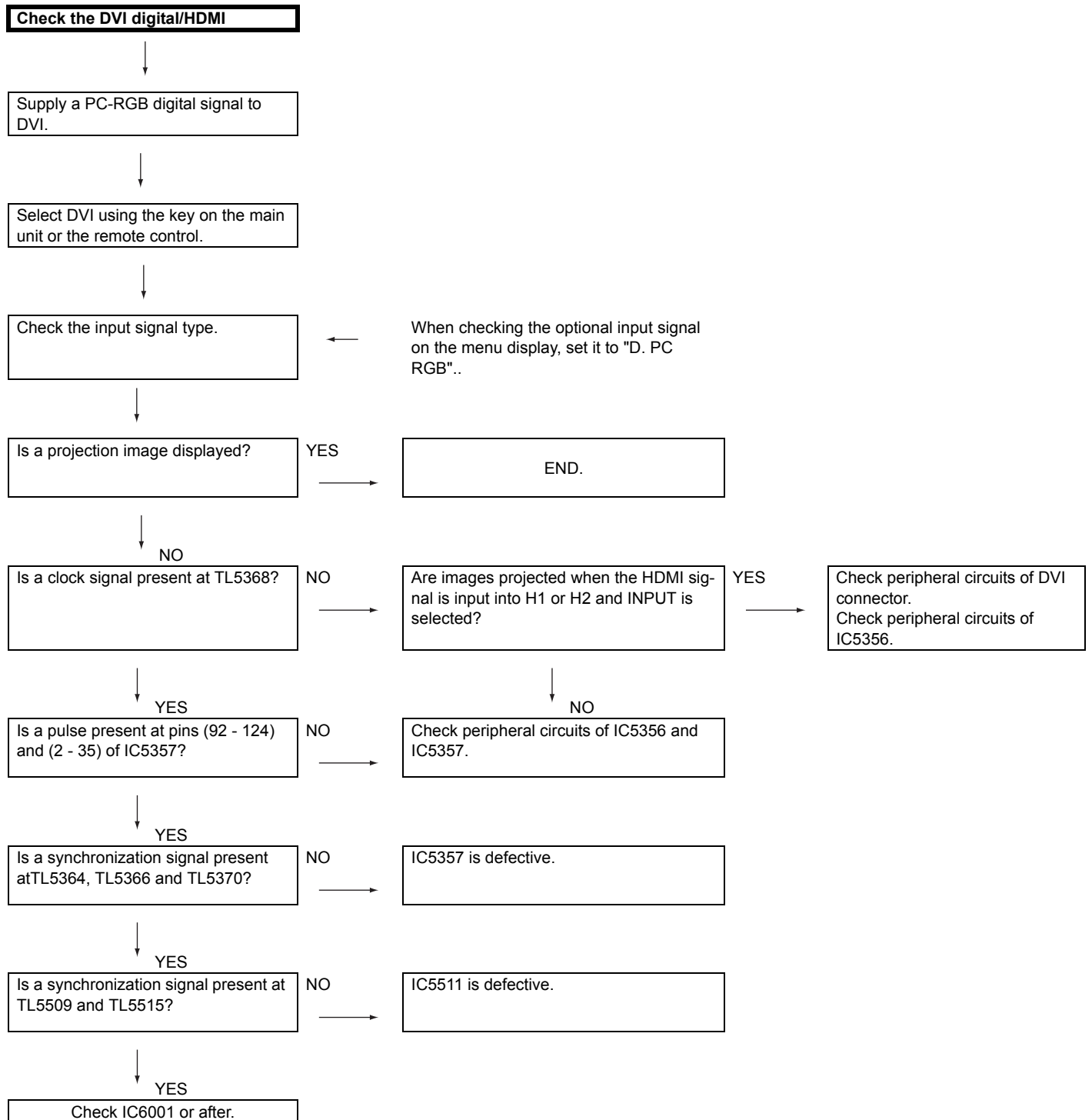






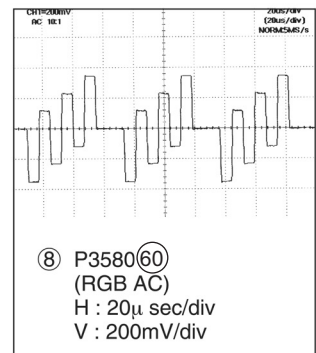
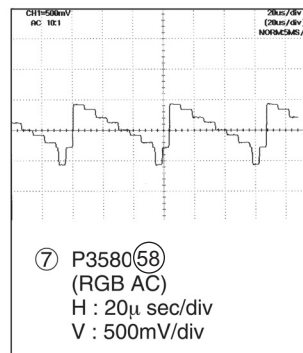
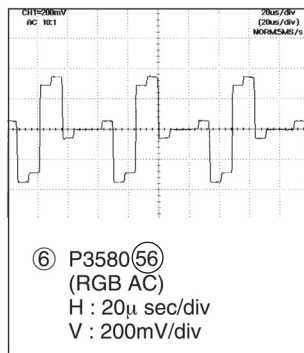
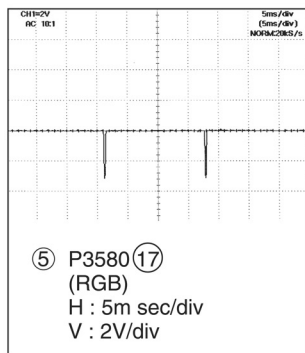
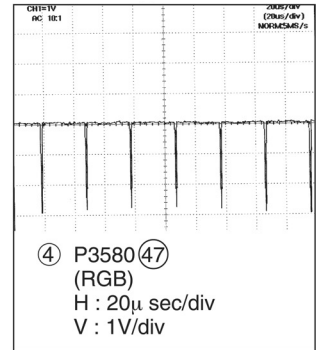
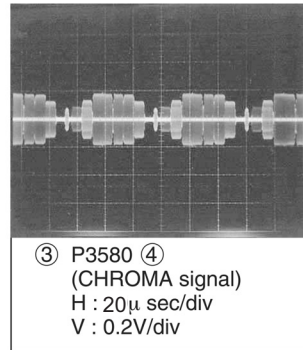
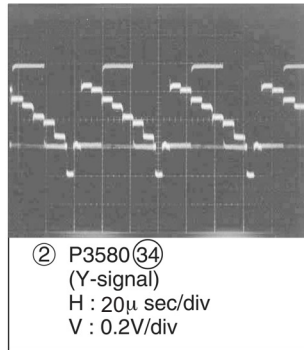
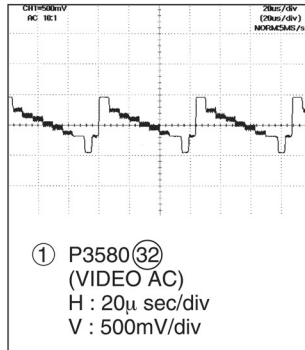






CHAPTER 8. WAVEFORMS

[1] WAVEFORMS



[2] WAVEFORM MEASUREMENT CONDITION

1. WAVEFORM MEASUREMENT CONDITION:

1. Waveforms at test points are observed at the supply voltage of AC 220V. Signals are fed by a color bar signal generator for servicing purpose.

CHAPTER 9. SCHEMATIC DIAGRAM

[1] DESCRIPTION OF SCHEMATIC DIAGRAM

1. VOLTAGE MEASUREMENT CONDITION:

1. Voltages at test points are measured at the supply voltage of AC 100V/CROSS 10V-240. Signals are fed by a color bar signal generator for servicing purpose and the above voltages are measured with a 20k ohm/V tester.

2. INDICATION OF RESISTOR & CAPACITOR:

RESISTOR

1. The unit of resistance "Ω" is omitted.
(K=kΩ=1000 Ω, M=MΩ).
2. All resistors are ± 5%, unless otherwise noted.
(J=± 5%, F= ± 1%, D= ± 0.5%)
3. All resistors are 1/10W, unless otherwise noted.
4. All resistors are Carbon type, unless otherwise noted.

Ⓒ : Solid ⒱ : Cement

Ⓔ : Oxide Film Ⓗ : Special

Ⓓ : Metal Coating

CAPACITOR

1. All capacitors are μF, unless otherwise noted.
(P=pF=μμF).
2. All capacitors are 50V, unless otherwise noted.
3. All capacitors are Ceramic type, unless otherwise noted.
(ML): Mylar (TA): Tantalum
(PF): Polypro Film (ST): Styrol

CAUTION:

This circuit diagram is original one, therefore there may be a slight difference from yours.

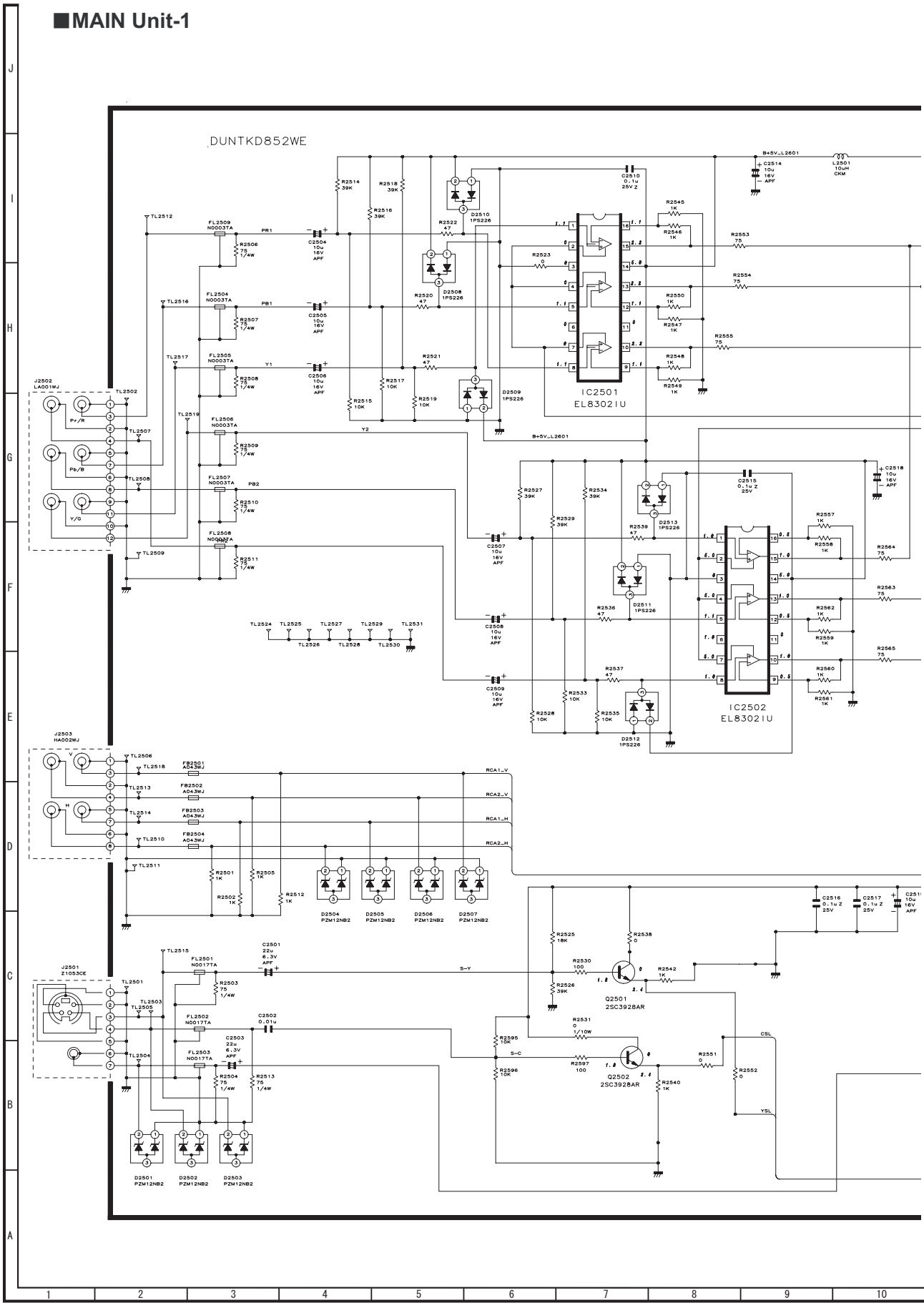
SAFETY NOTES:

1. DISCONNECT THE AC PLUG FROM THE AC OUTLET BEFORE REPLACING PARTS.
2. SEMICONDUCTOR HEAT SINKS SHOULD BE REGARDED AS POTENTIAL SHOCK HAZARDS WHEN THE CHASSIS IS OPERATING.

IMPORTANT SAFETY NOTICE:

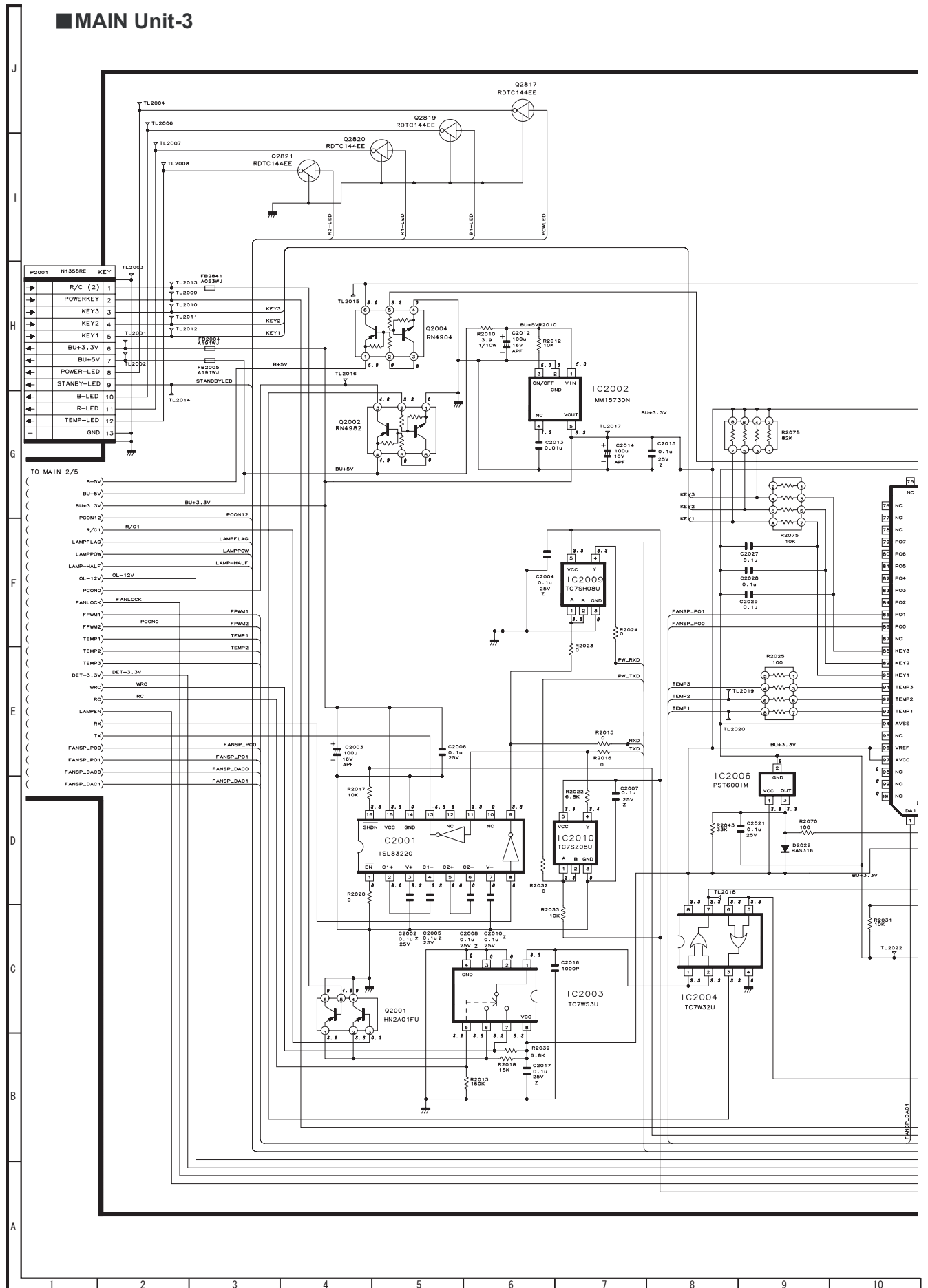
PARTS MARKED WITH "⚠" () ARE IMPORTANT FOR MAINTAINING THE SAFETY OF THE SET. BE SURE TO REPLACE THESE PARTS WITH SPECIFIED ONES FOR MAINTAINING THE SAFETY AND PERFORMANCE OF THE SET.

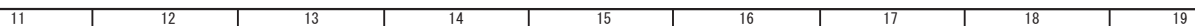
■ MAIN Unit-1



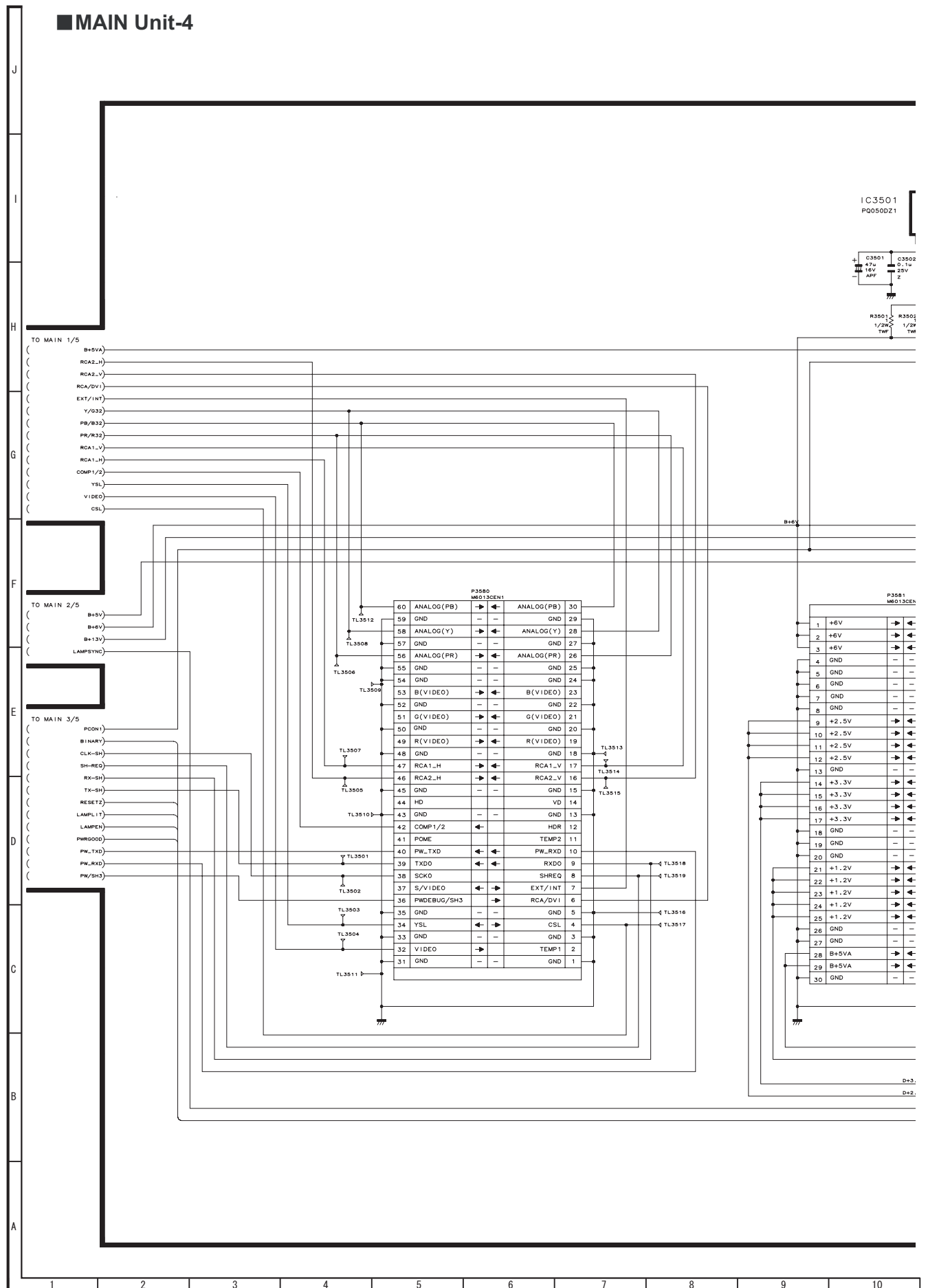


MAIN Unit-3



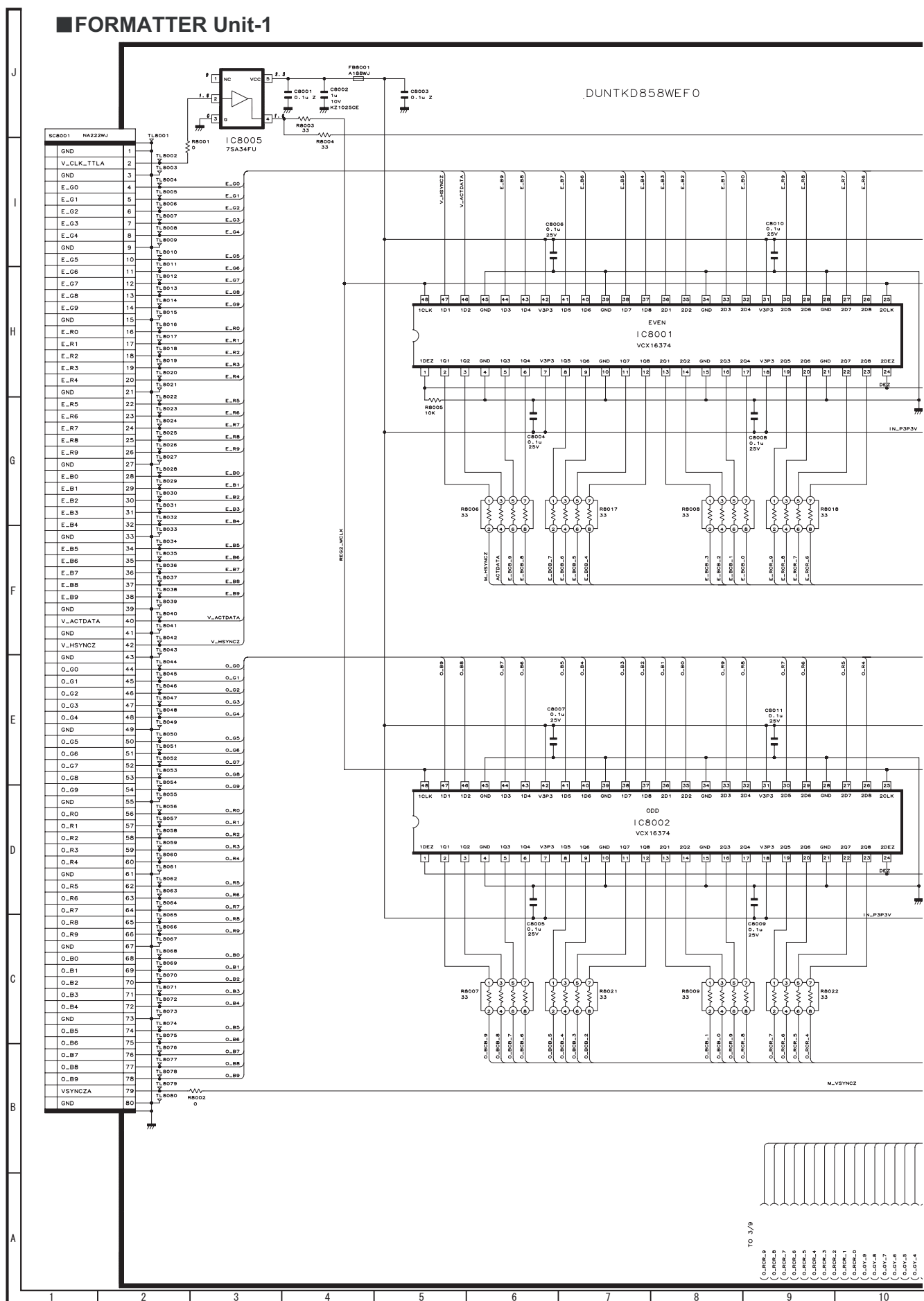


MAIN Unit-4





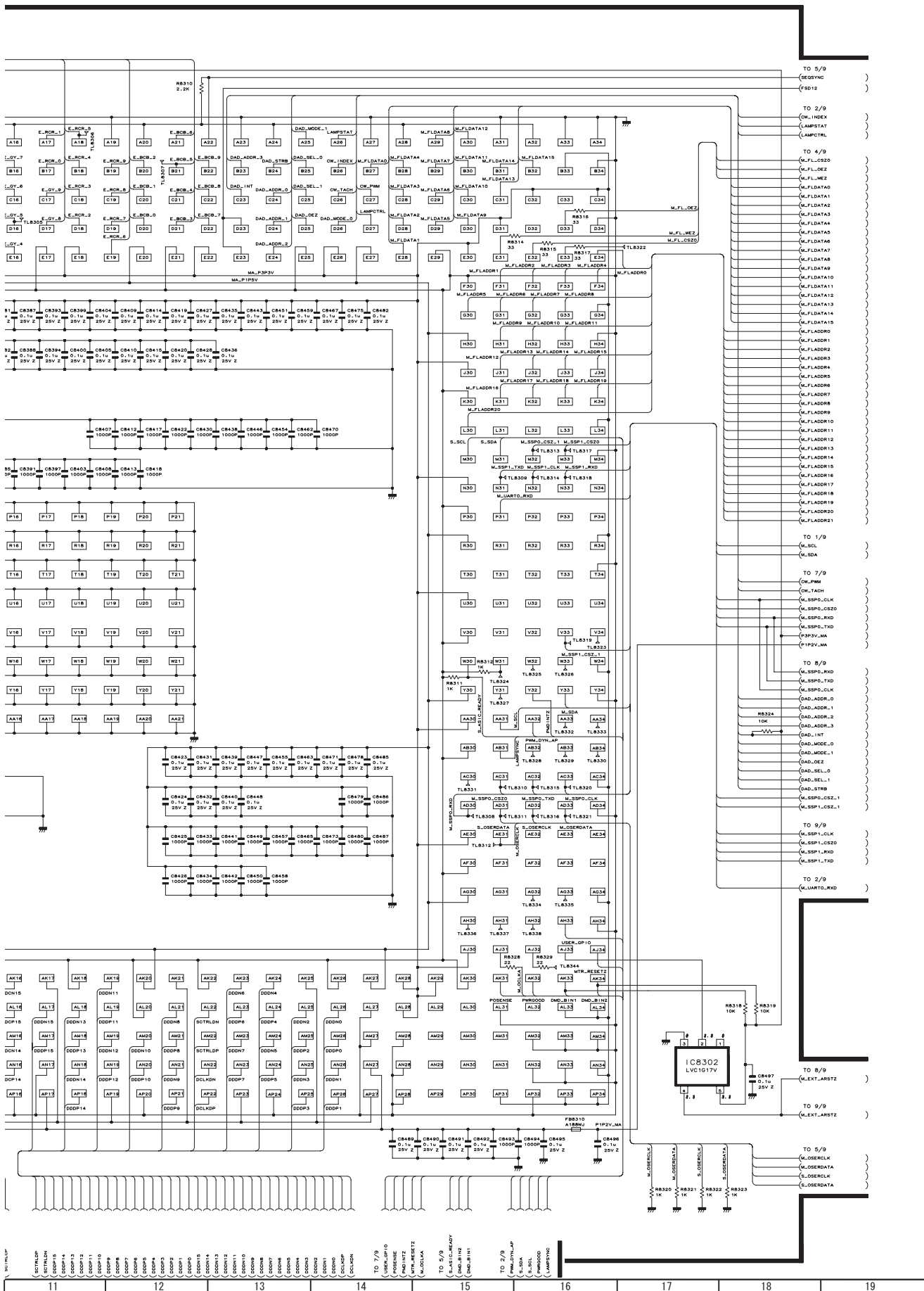
FORMATTER Unit-1



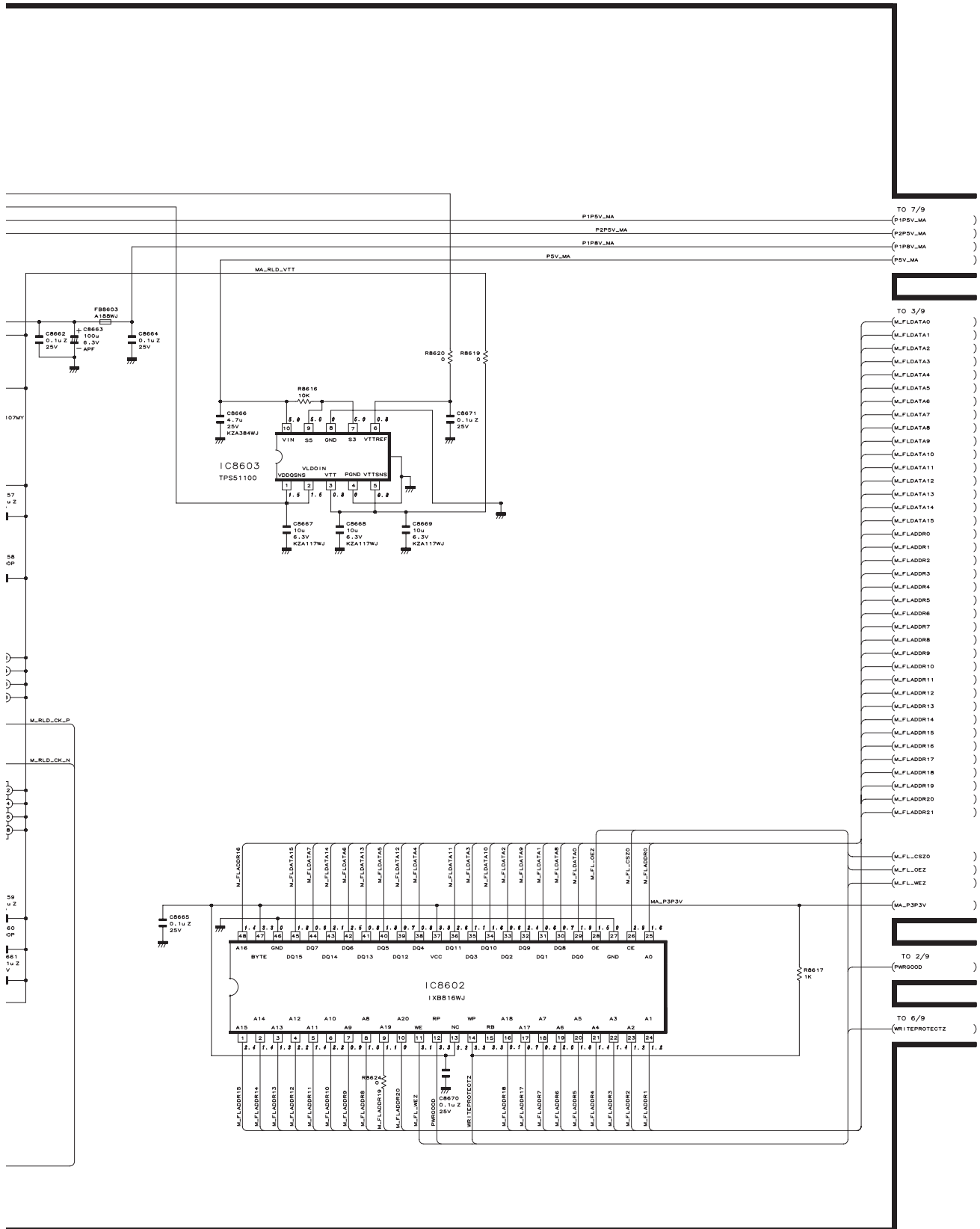






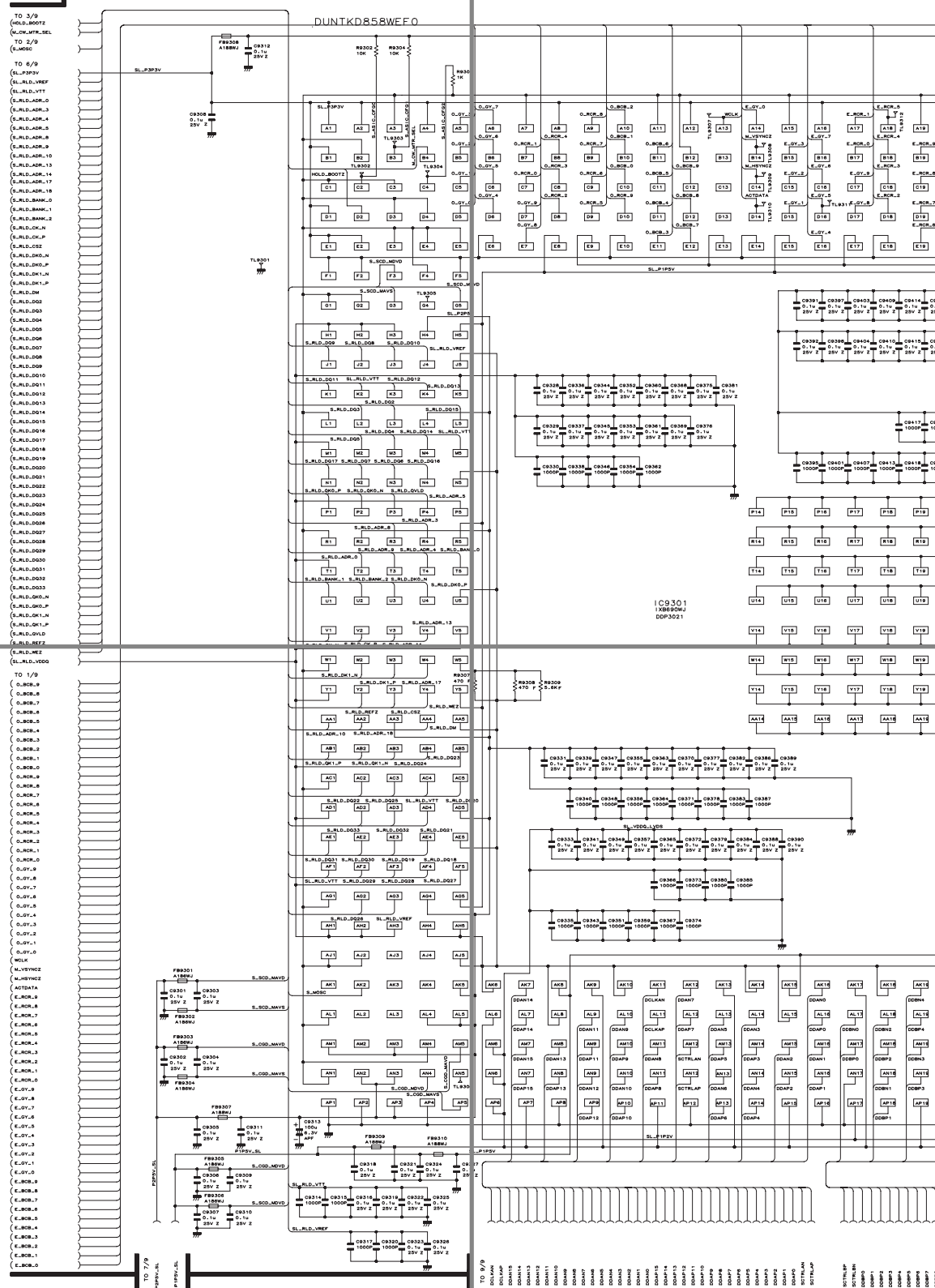






(1/8) Please peel off and refer to page 12-22.

■ FORMATTER UNIT-5



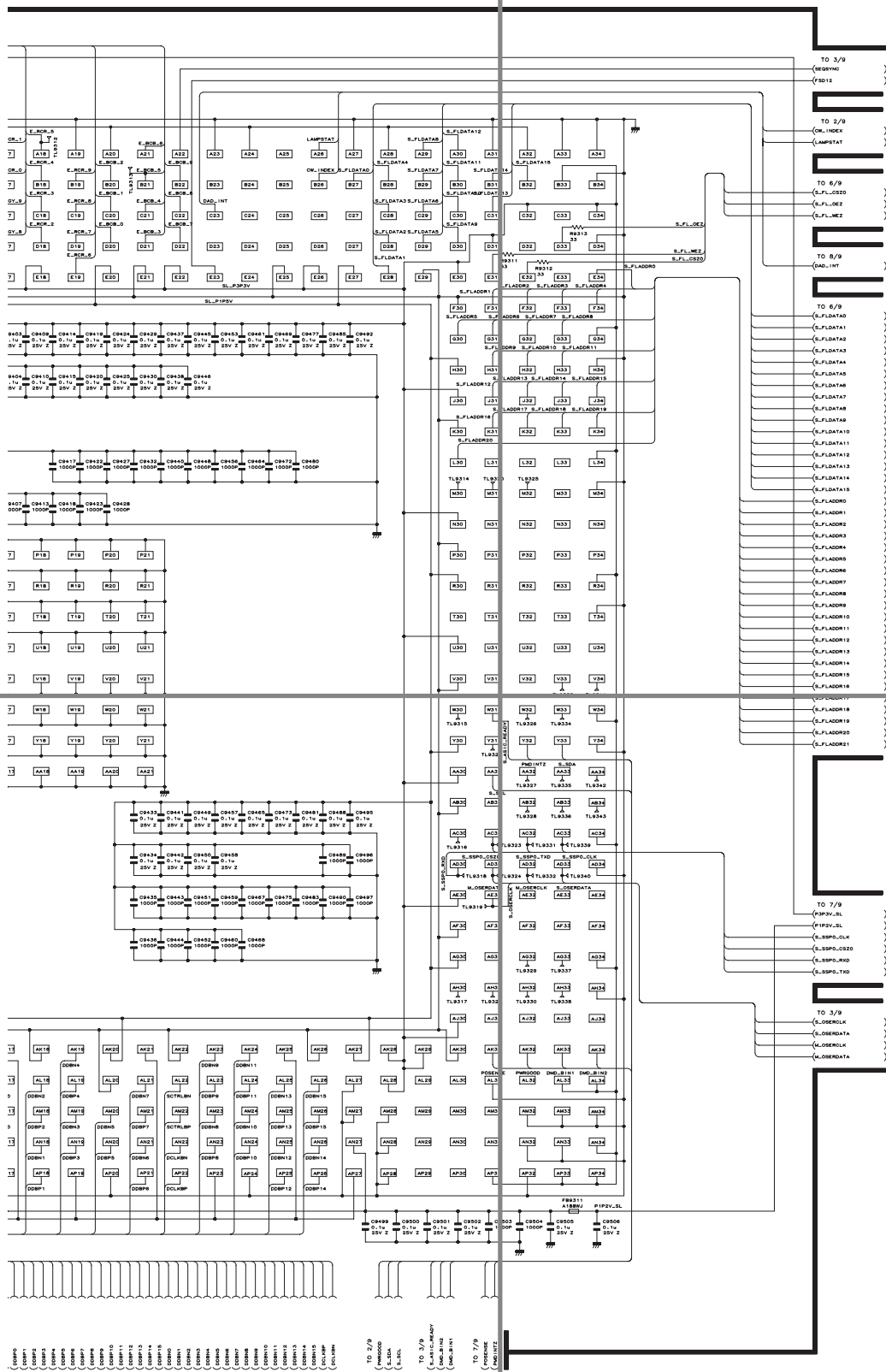
(2/8) Please peel off and refer to page 12-23.

(5/8) Please peel off and refer to page 12-26.

(6/8) Please peel off and refer to page 12-27.

(3/8) Please peel off and refer to page 12-24.

(4/8) Please peel off and refer to page 12-25.



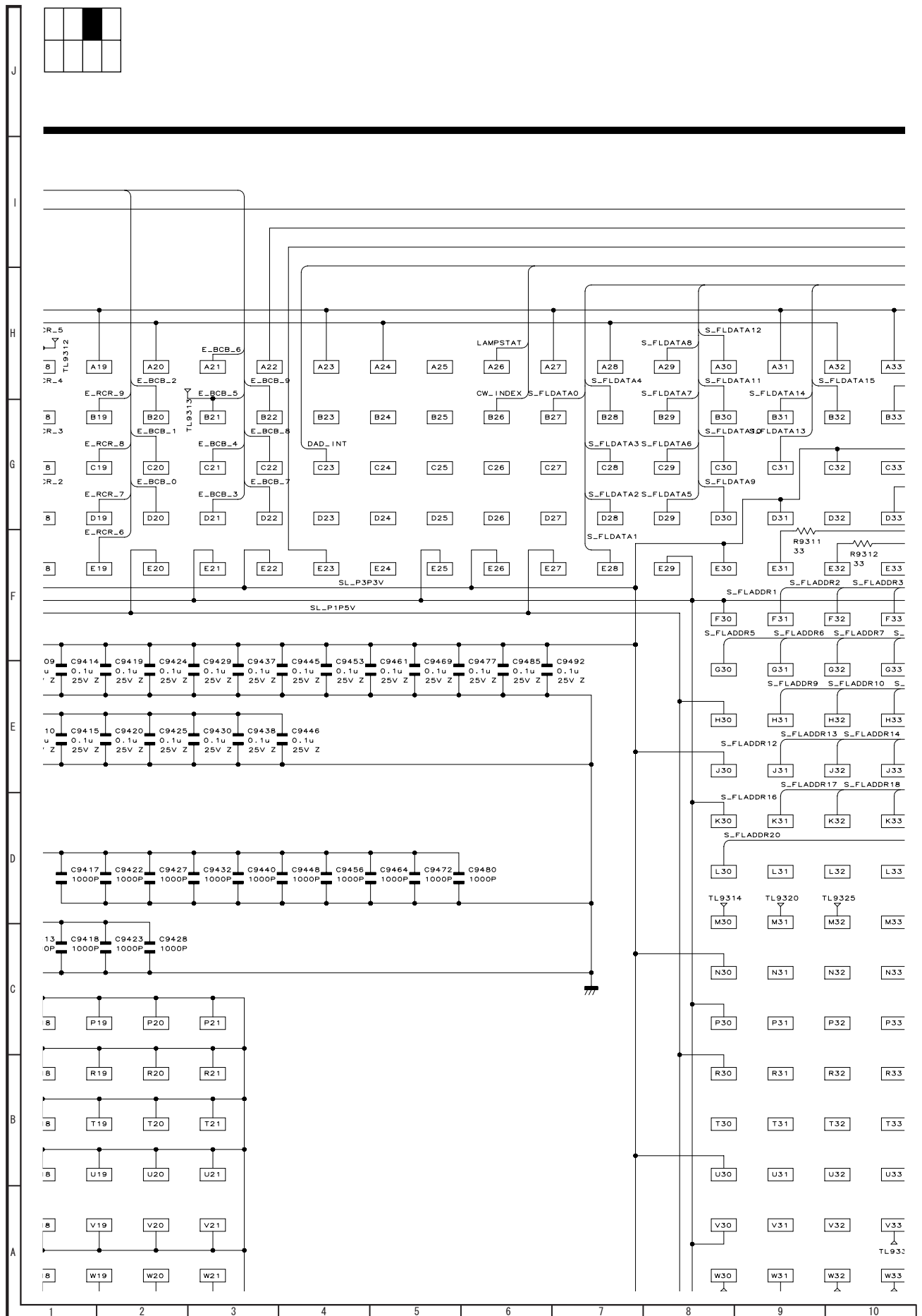
(7/8) Please peel off and refer to page 12-28.

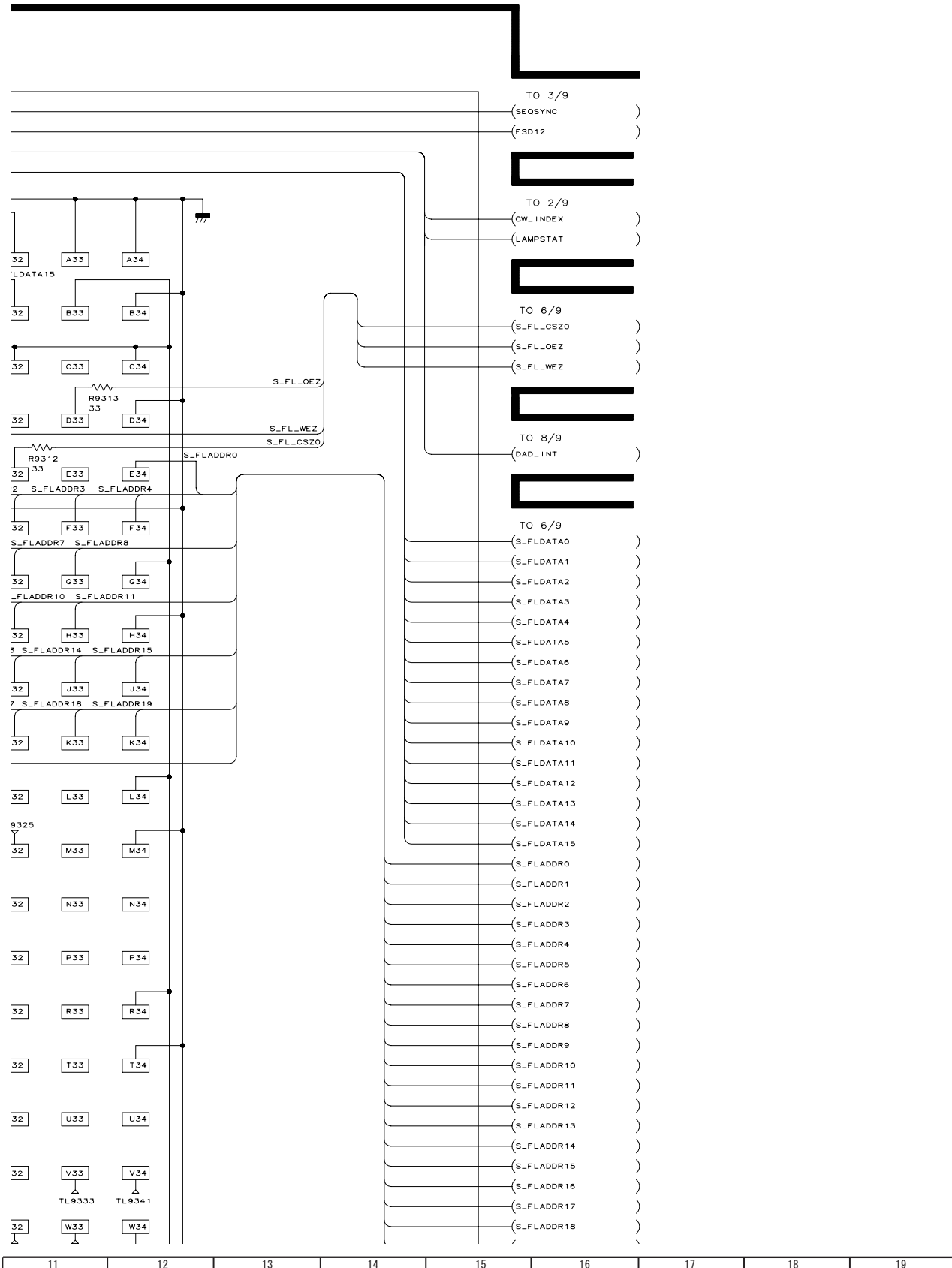
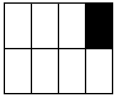
(8/8) Please peel off and refer to page 12-29.

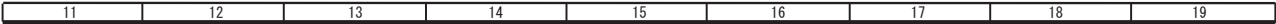
A B C D E F G H I J

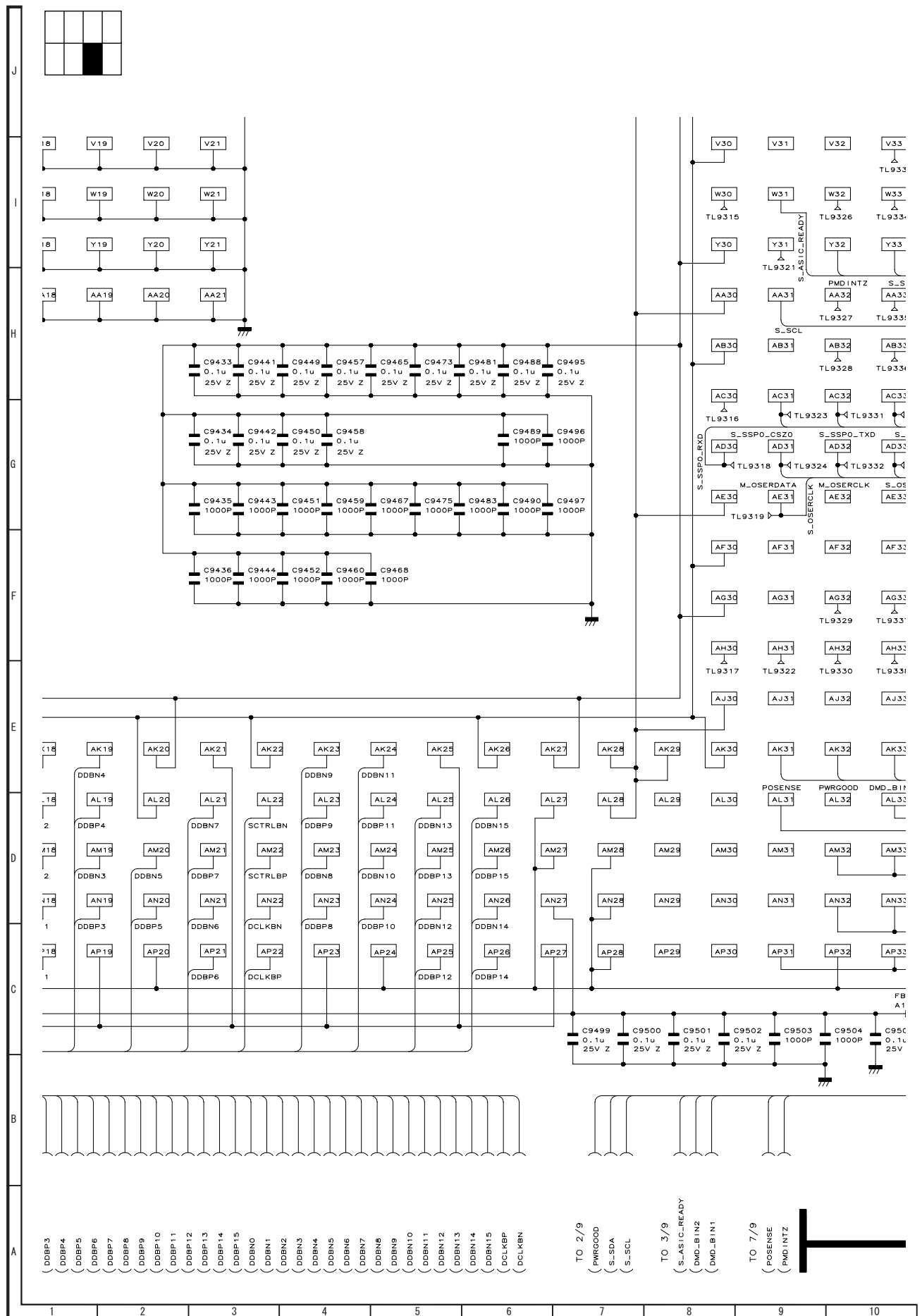


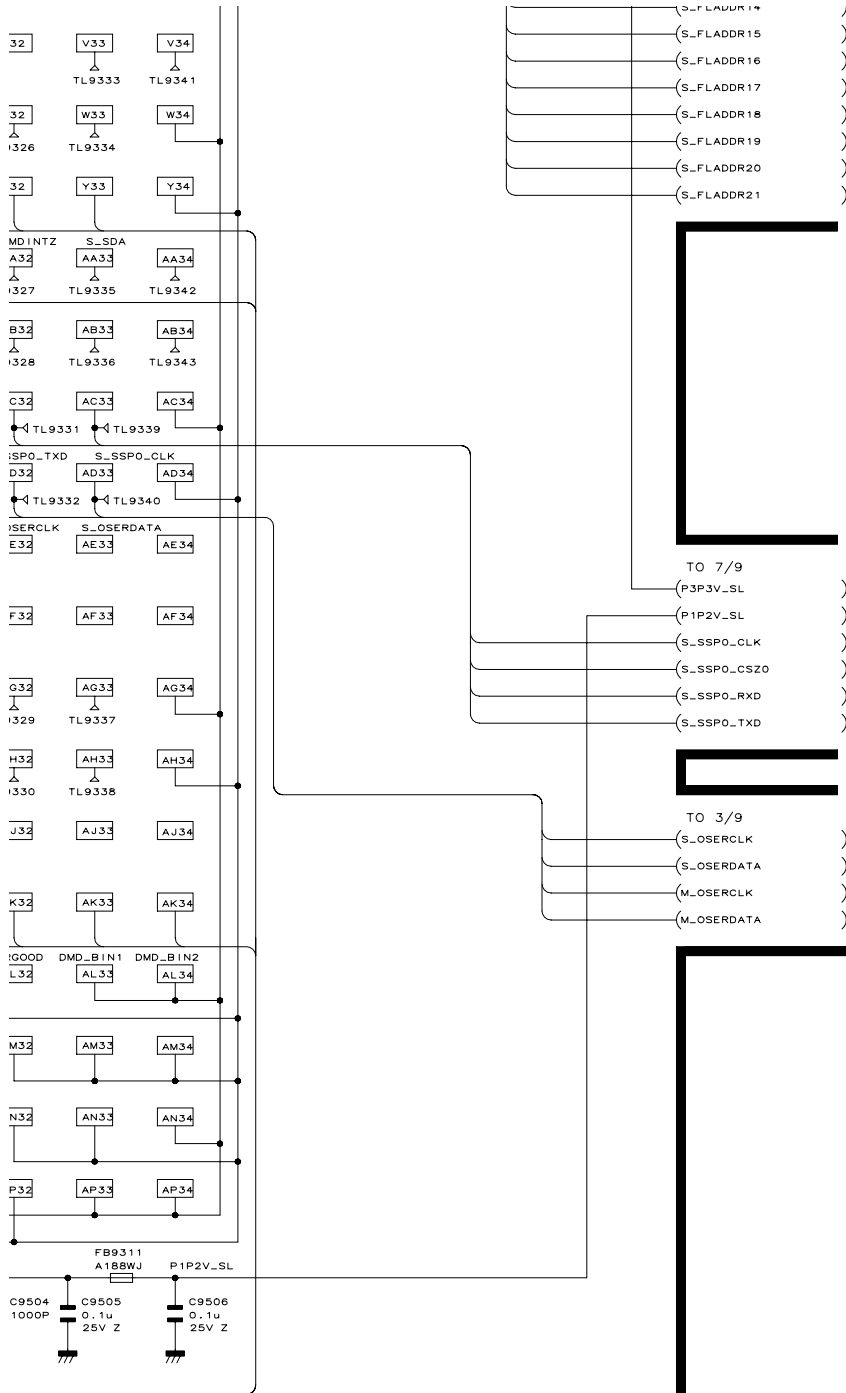
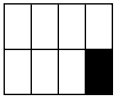




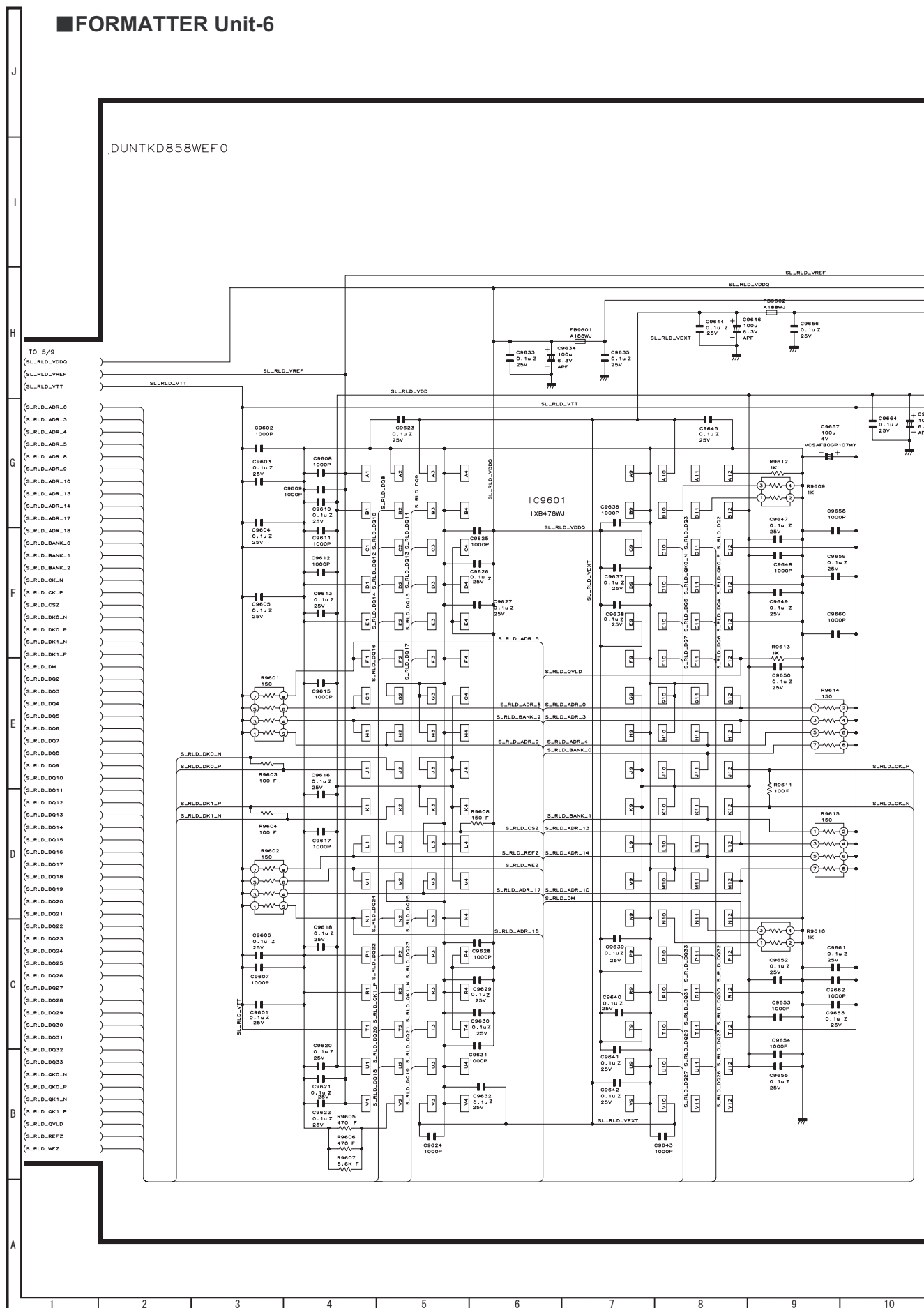




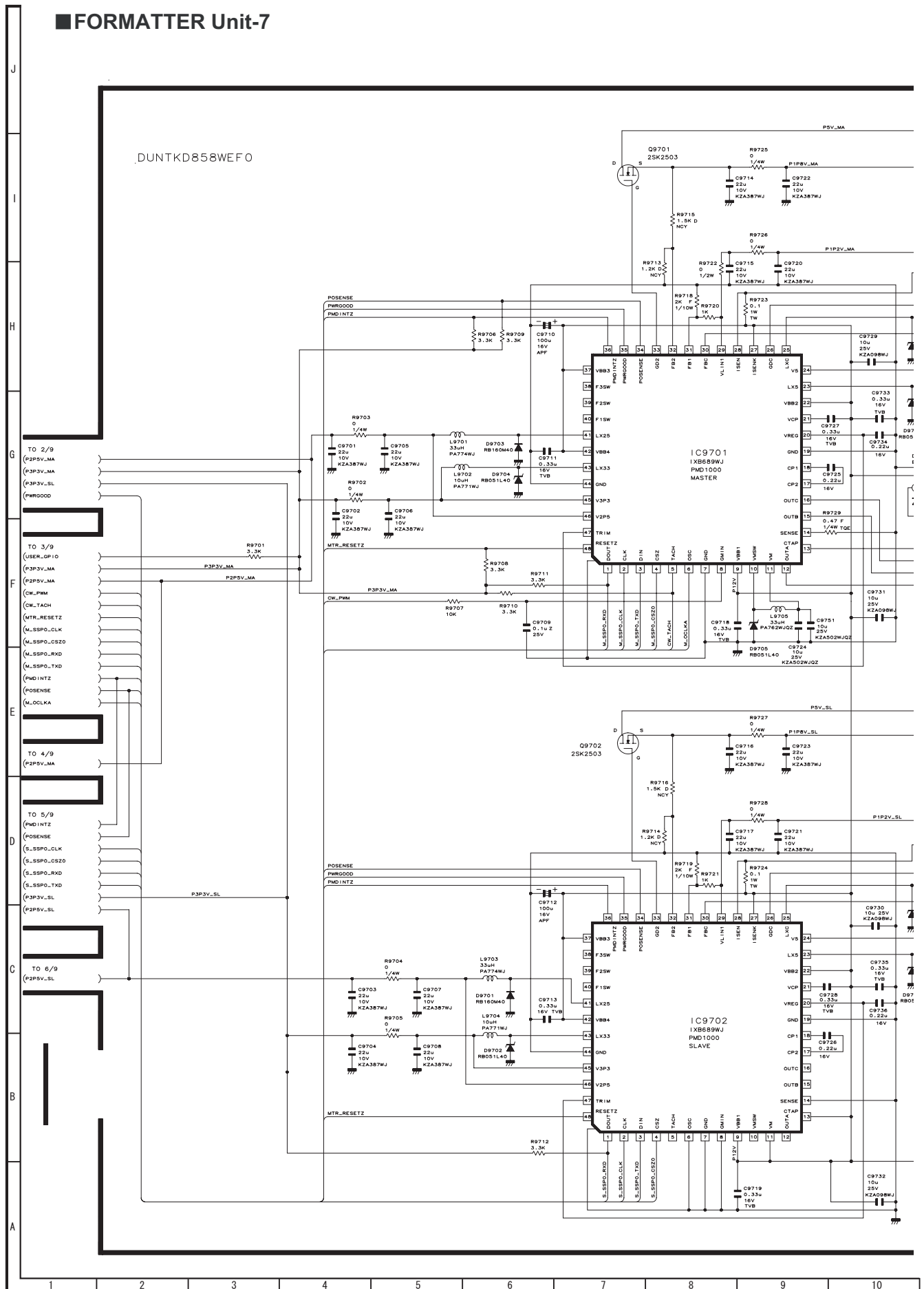




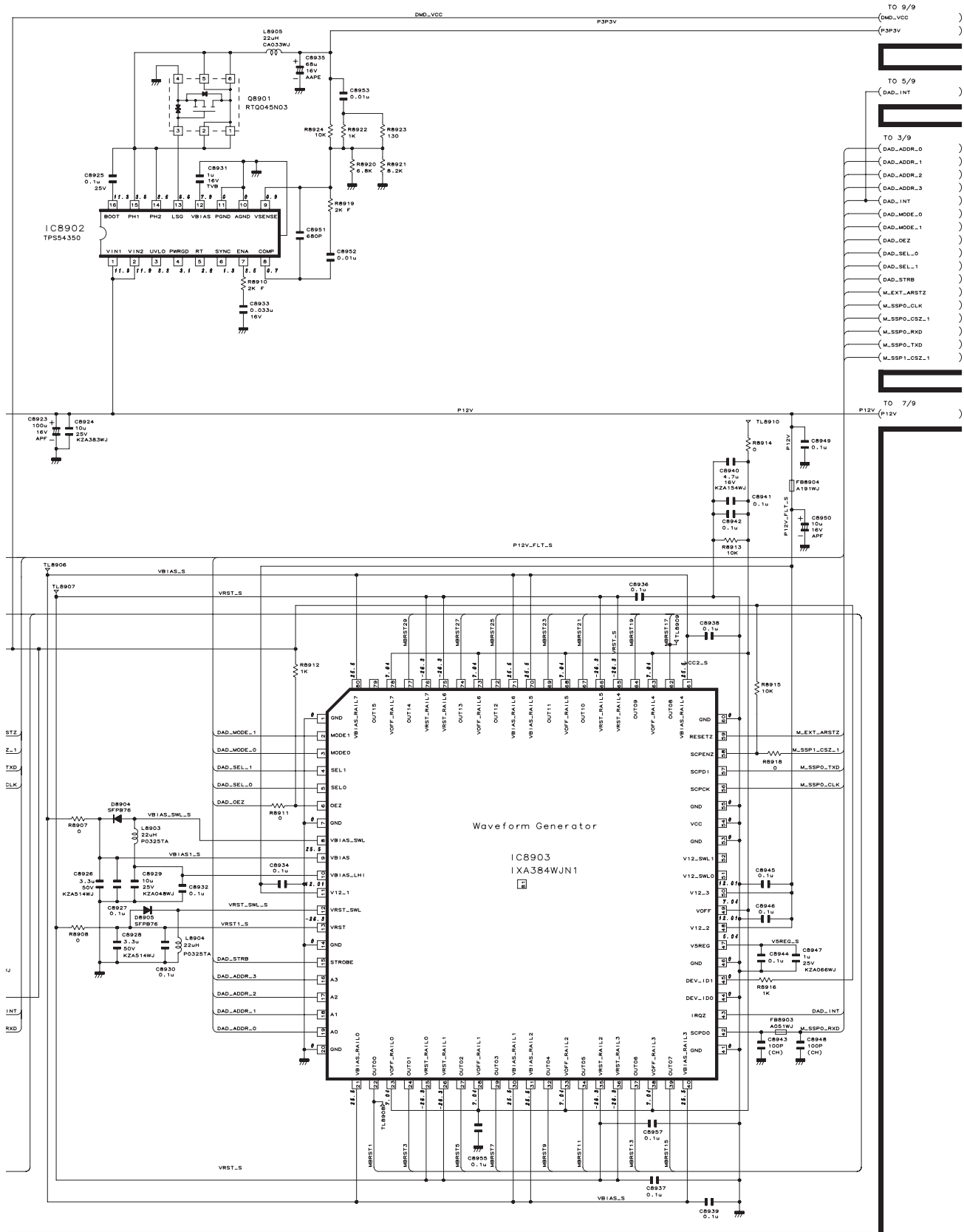
■ FORMATTER Unit-6



FORMATTER Unit-7

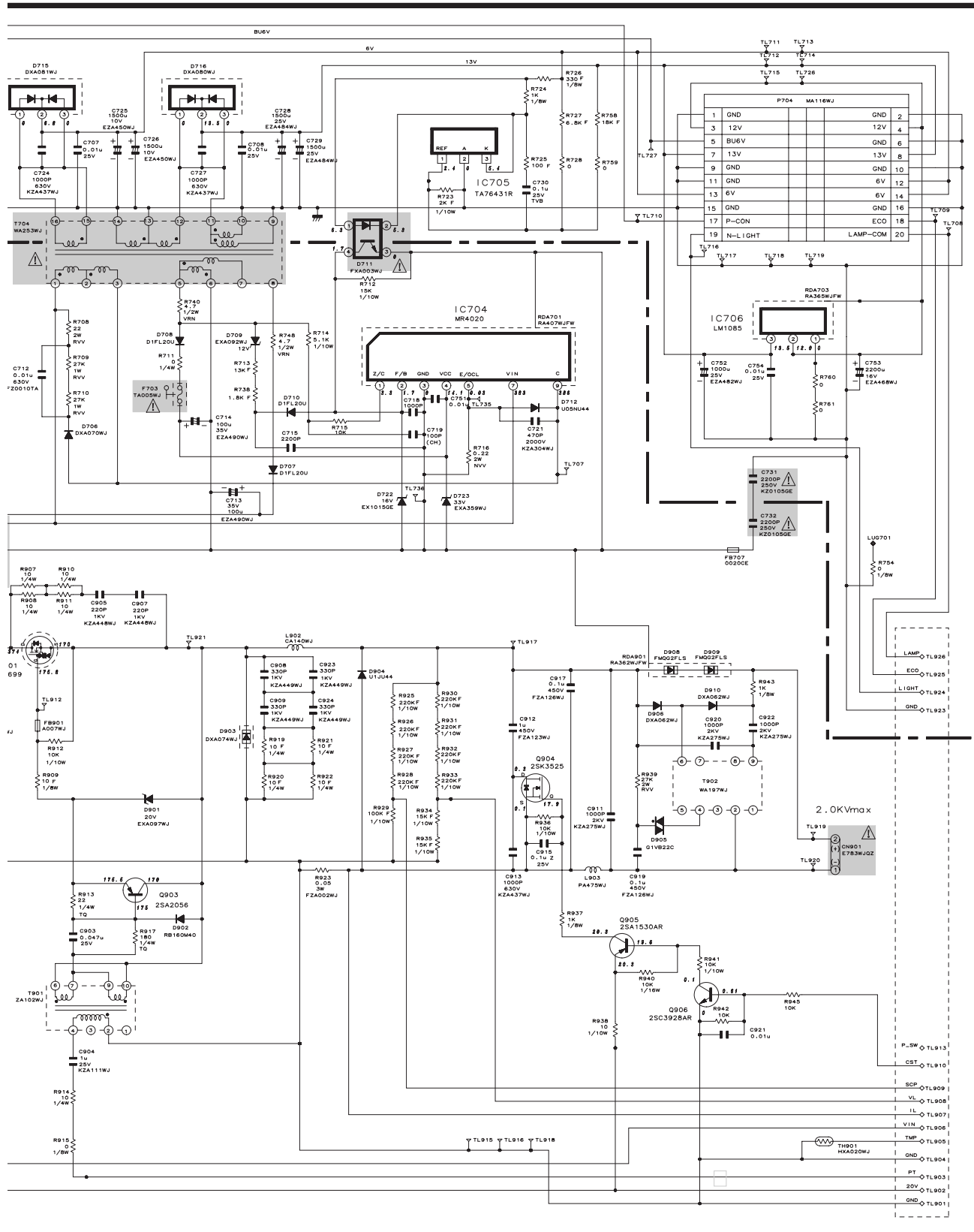




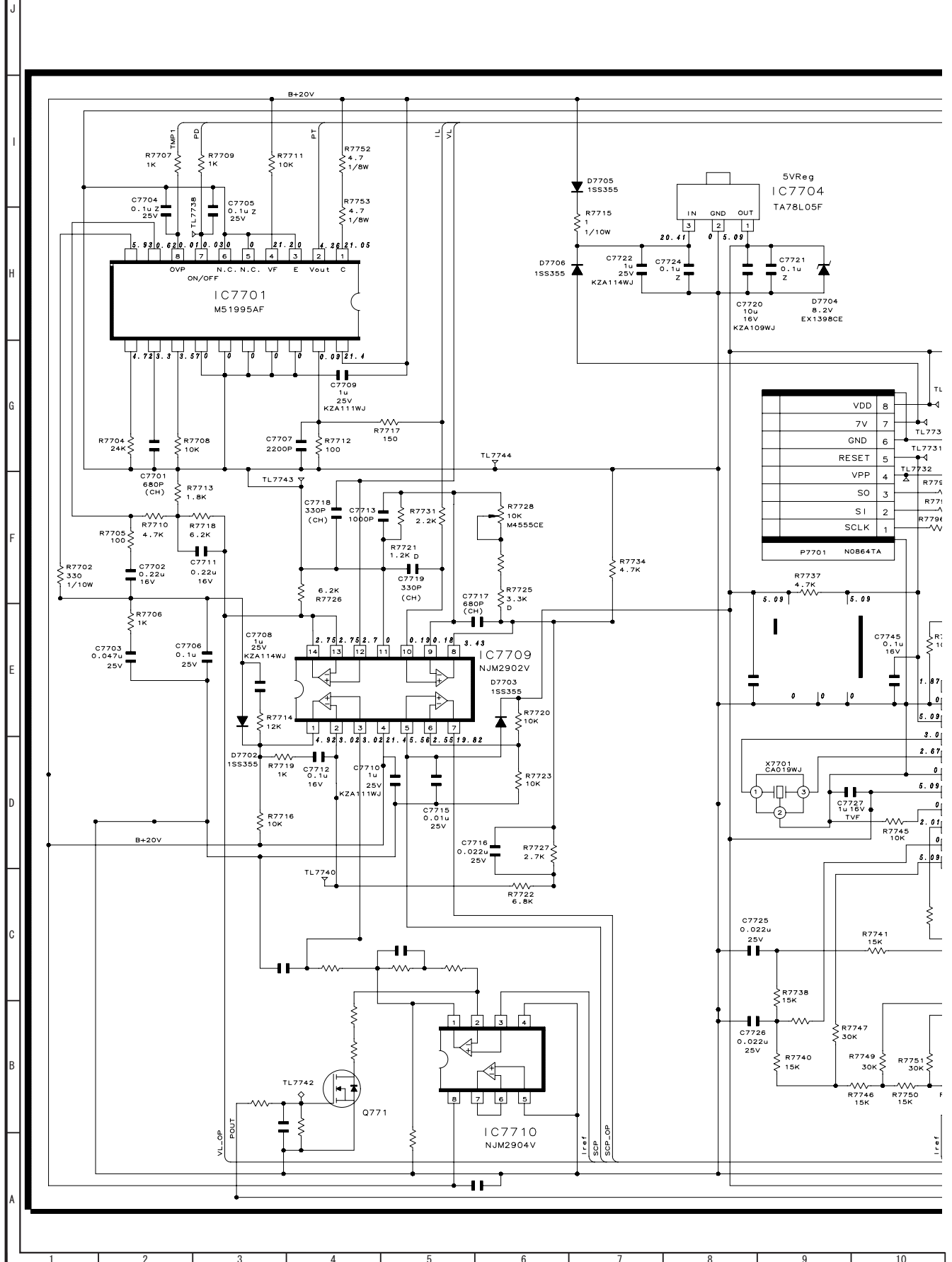




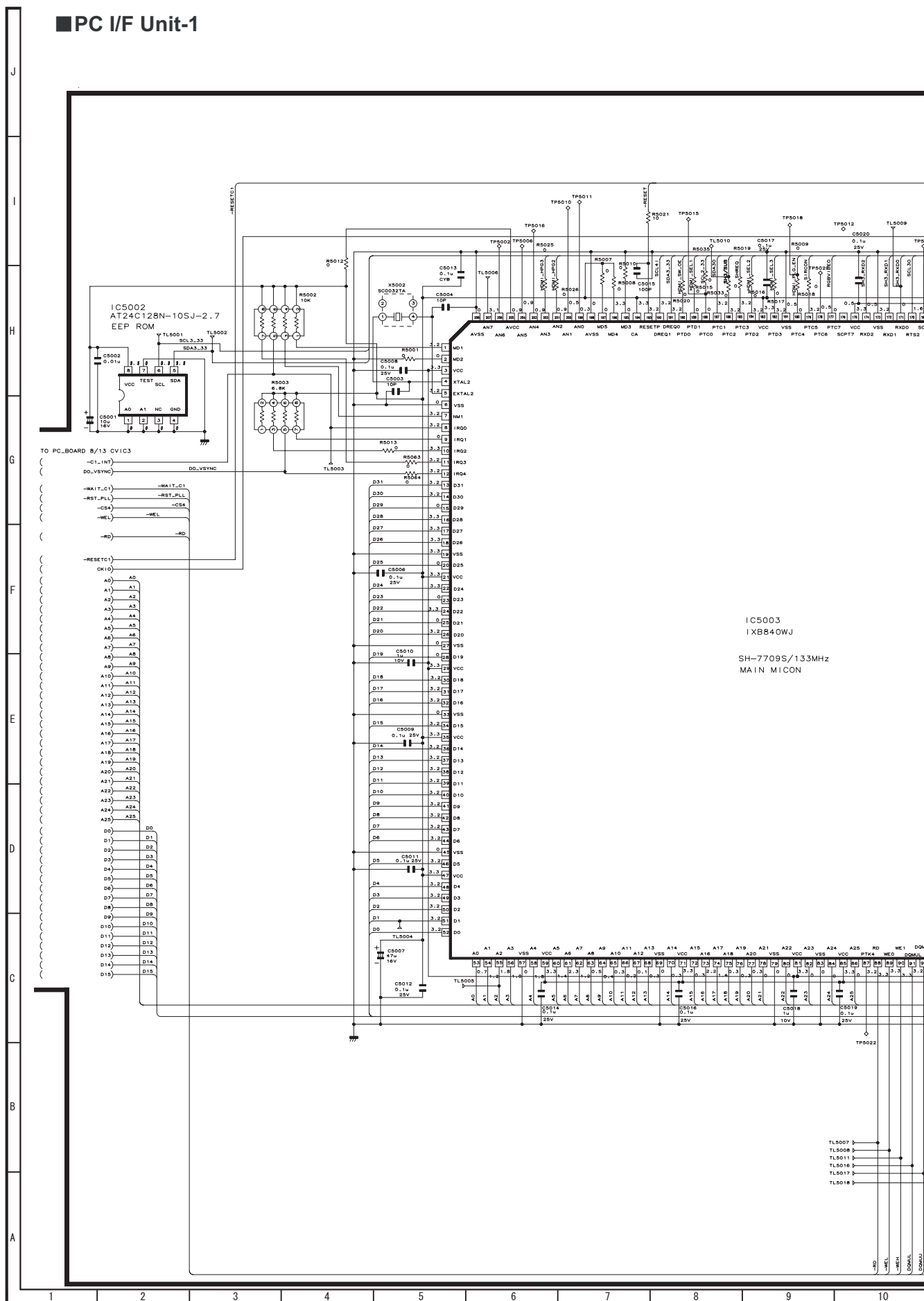




■ BALLAST CONTROL Unit

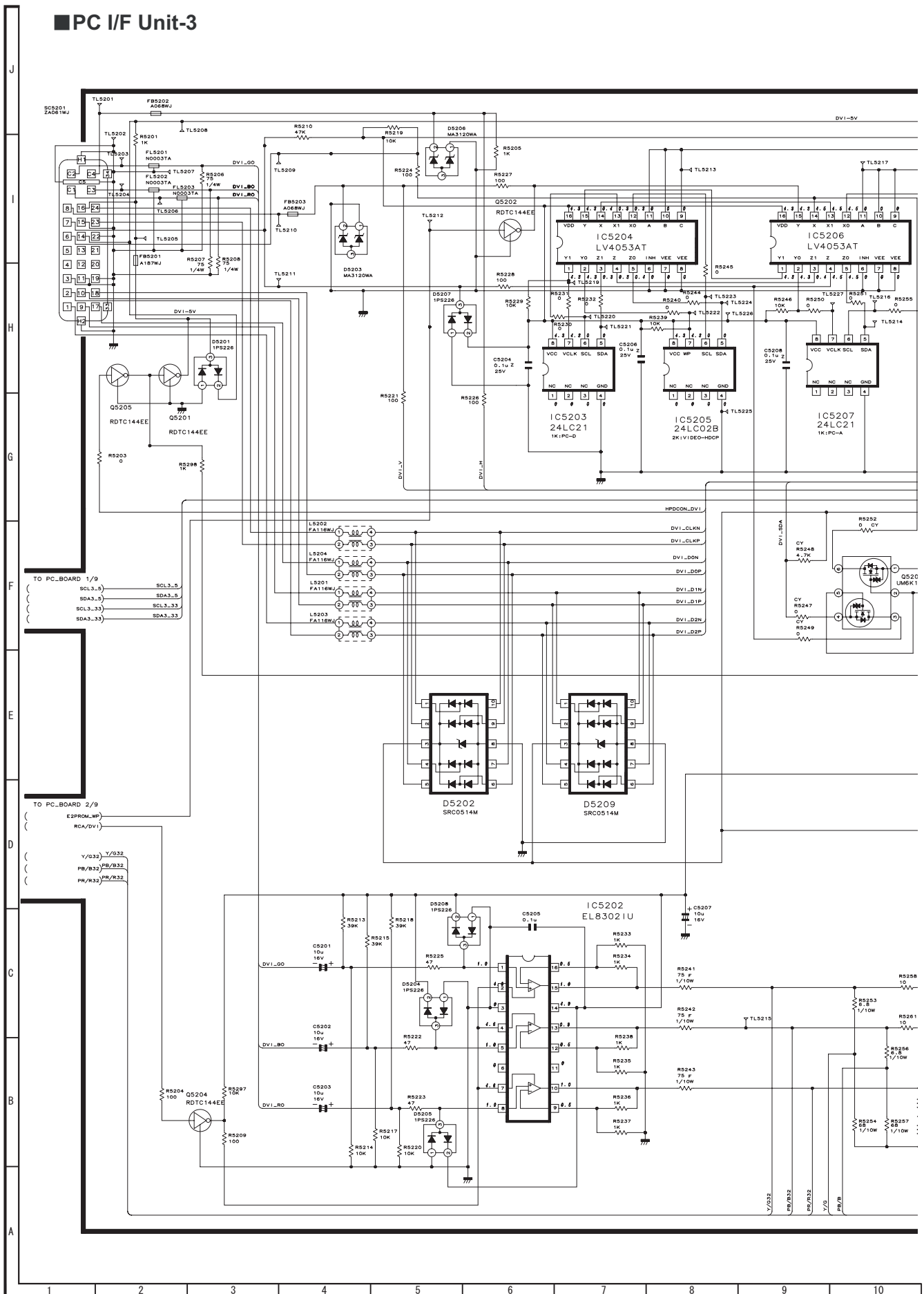


■ PC I/F Unit-1



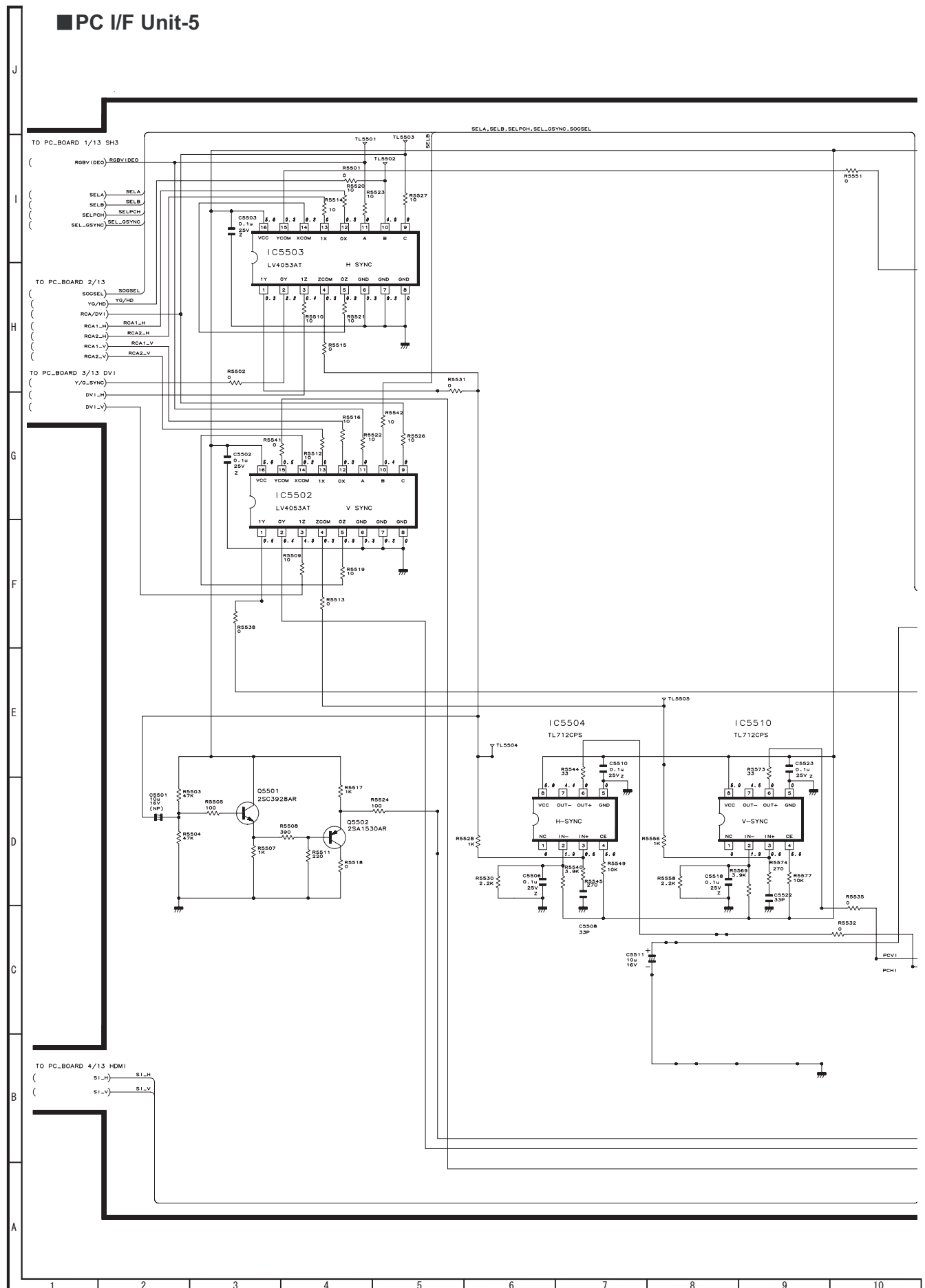


■ PC I/F Unit-3

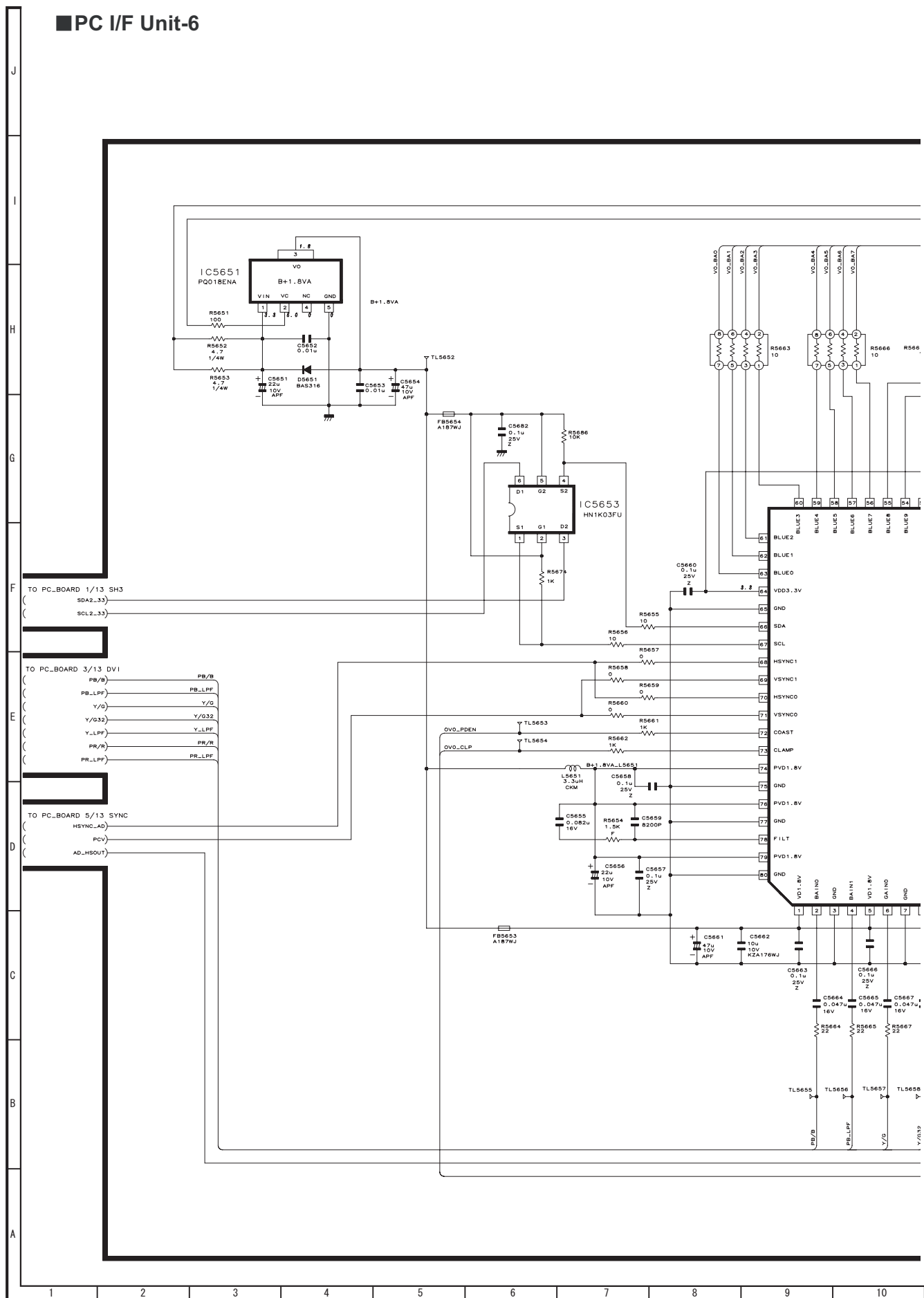




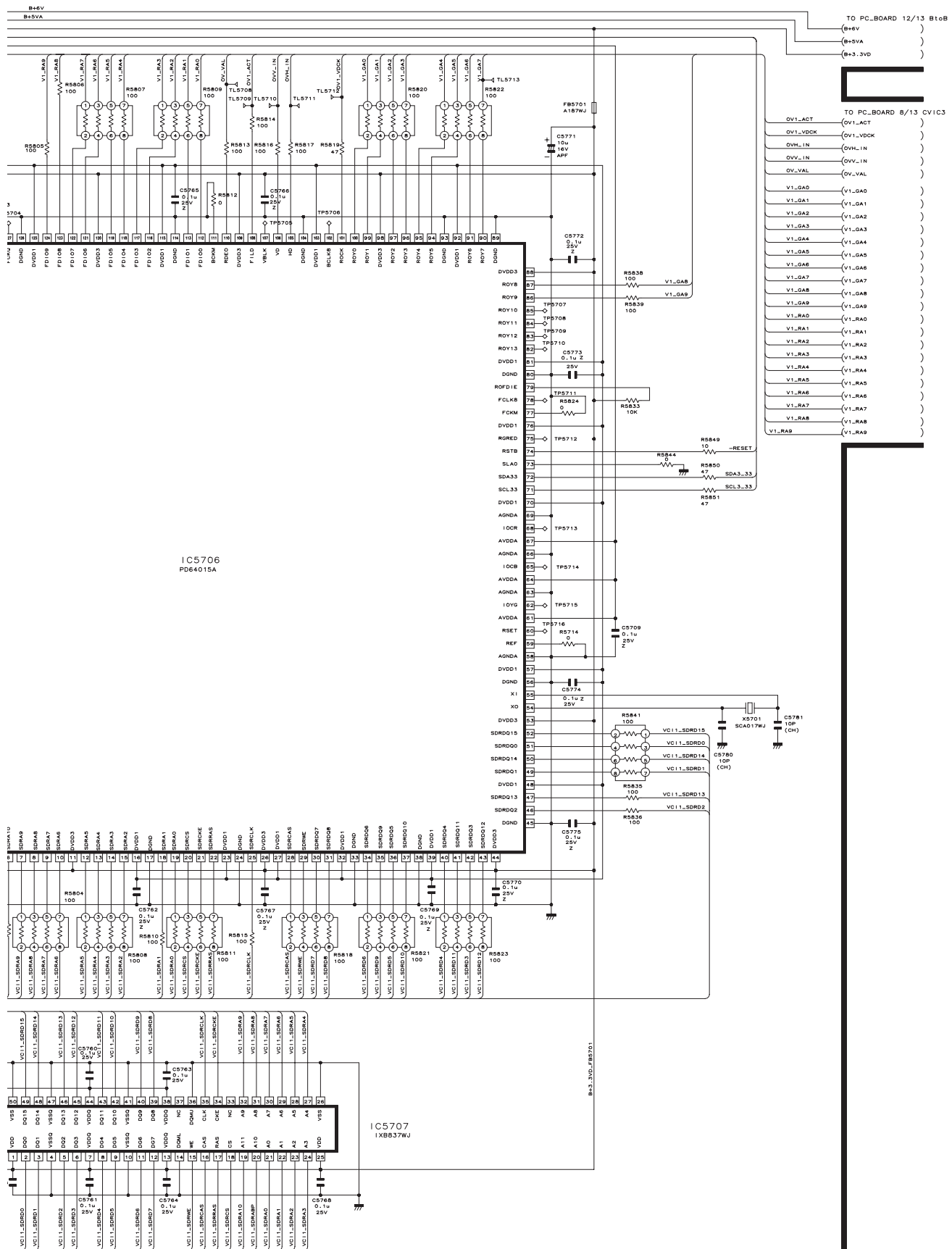
PC I/F Unit-5



■PC I/F Unit-6

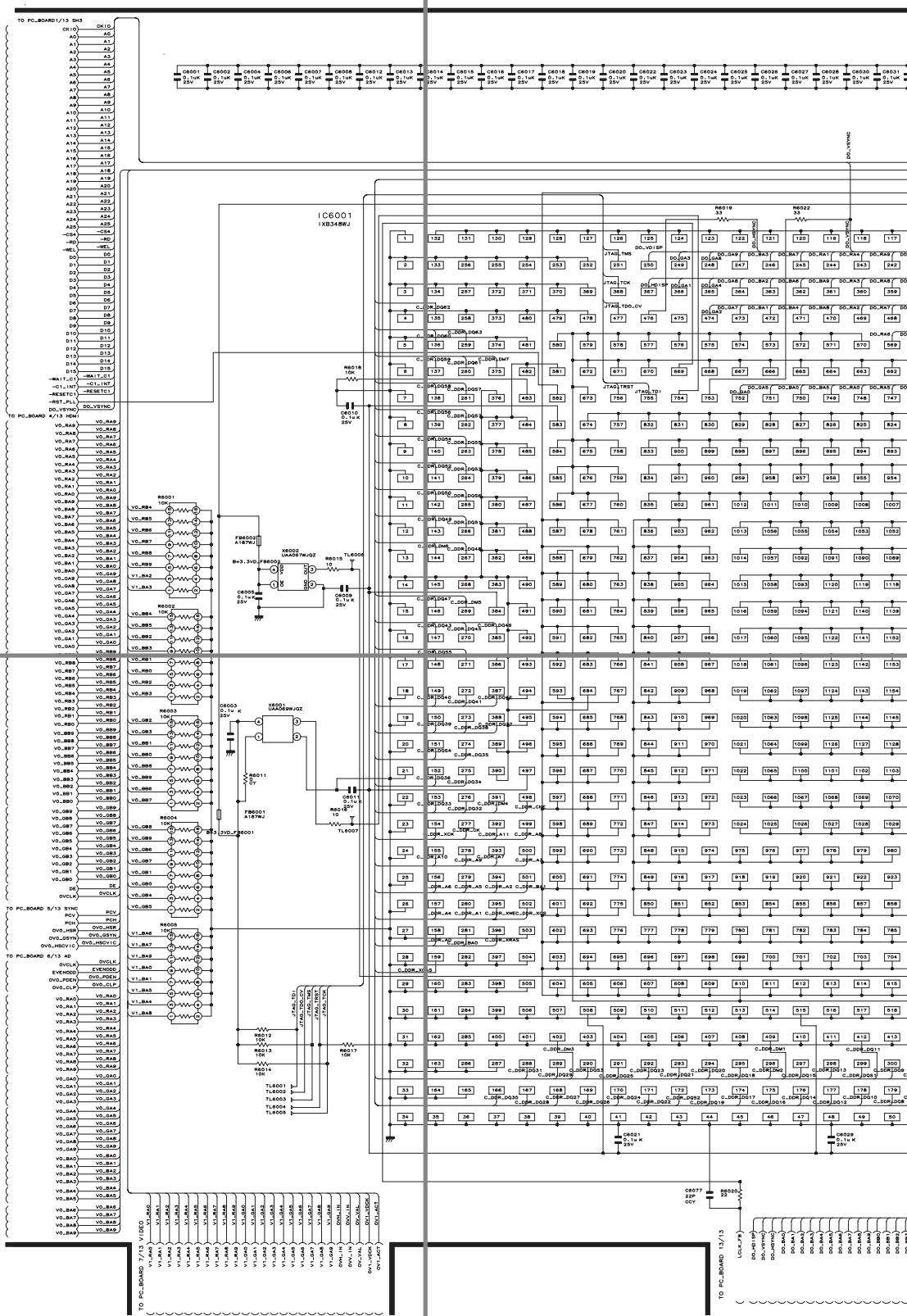






(1/8) Please peel off and refer to page 12-58.

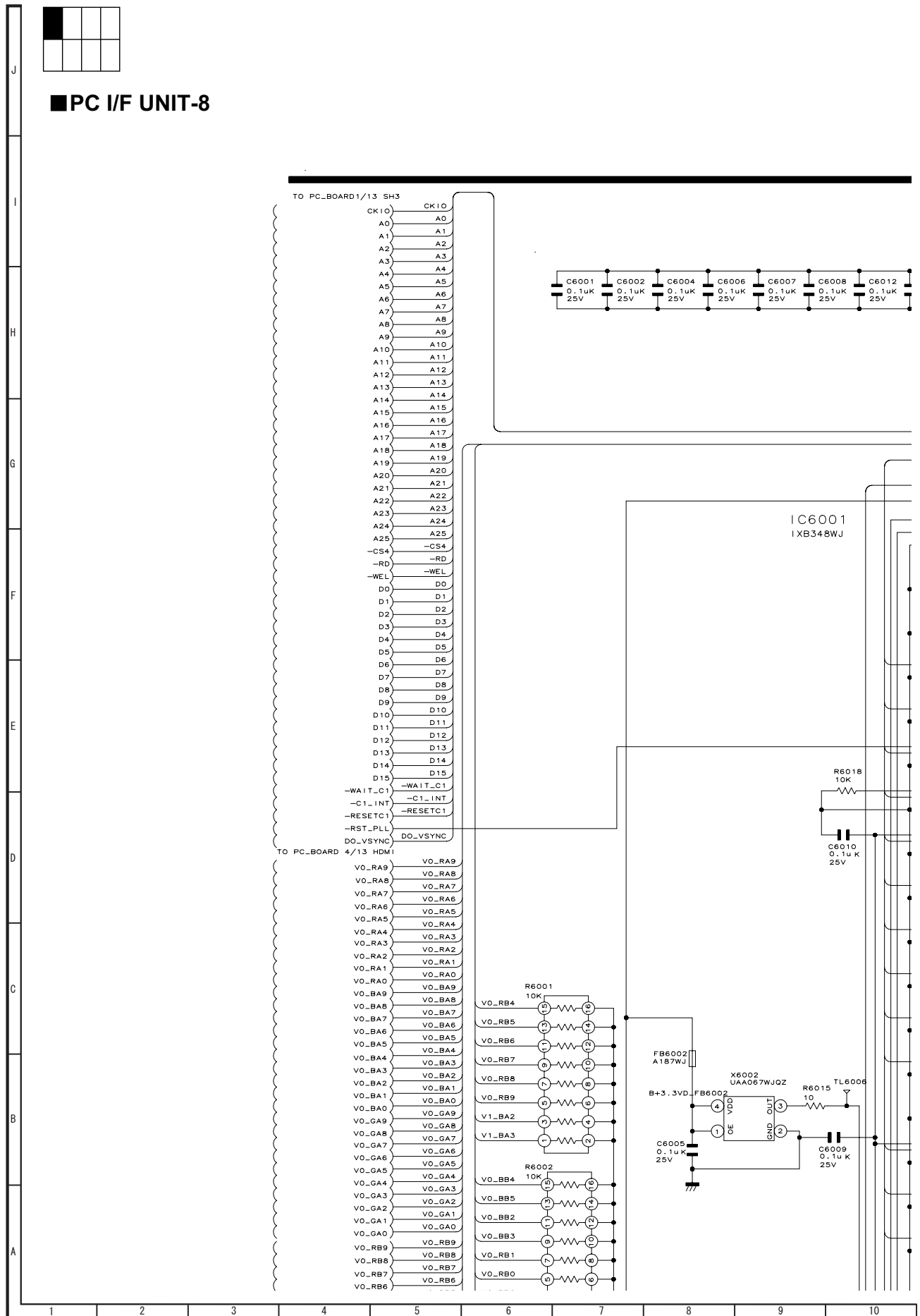
■ PC I/F UNIT-8



(2/8) Please peel off and refer to page 12-59.

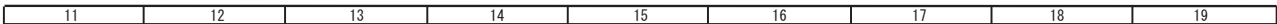
(5/8) Please peel off and refer to page 12-62.

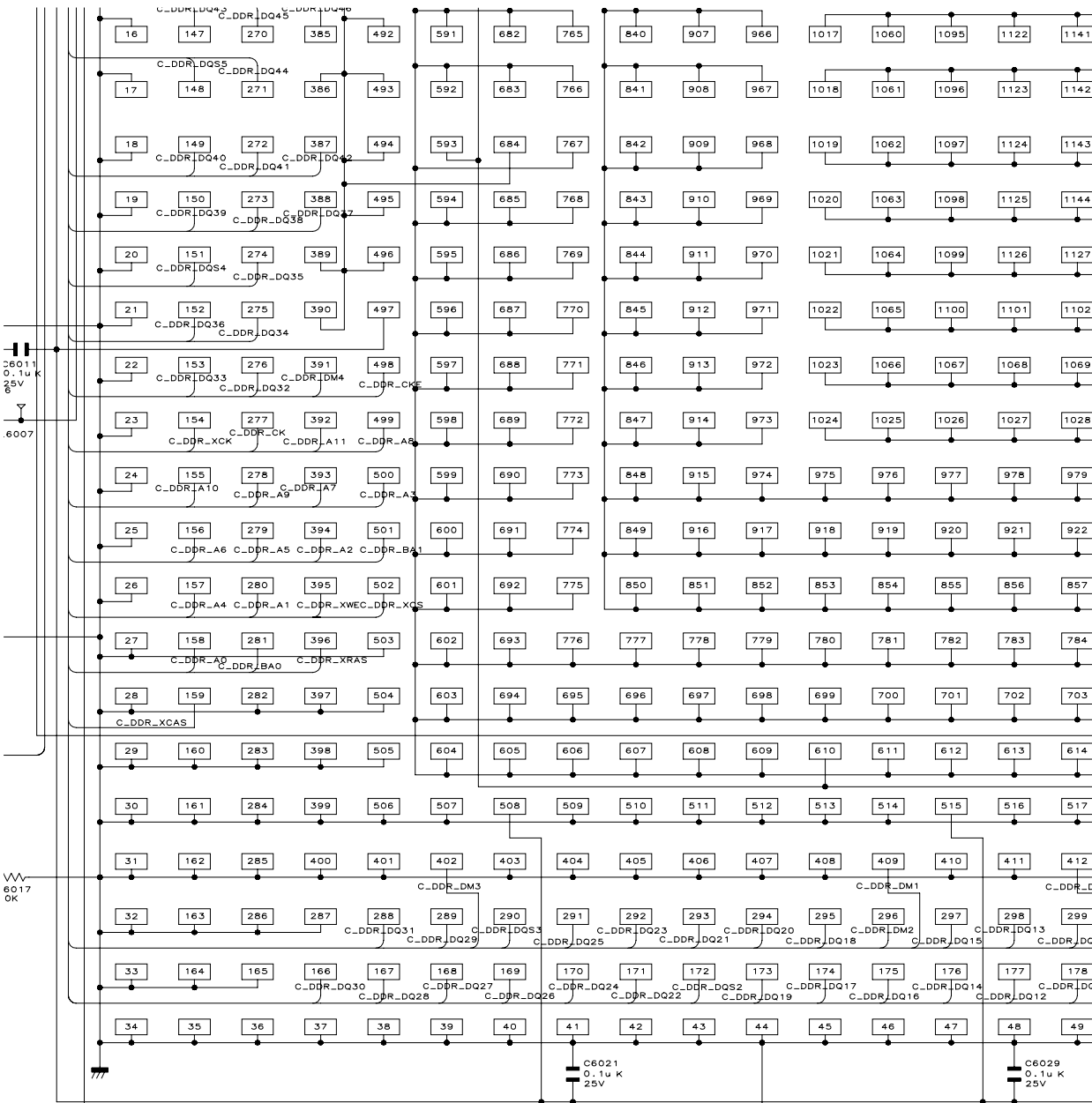
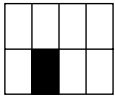
(6/8) Please peel off and refer to page 12-63.









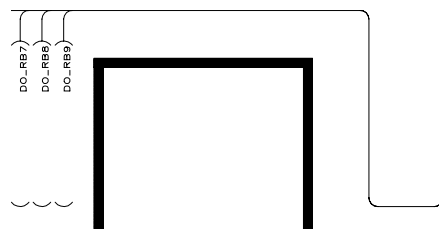
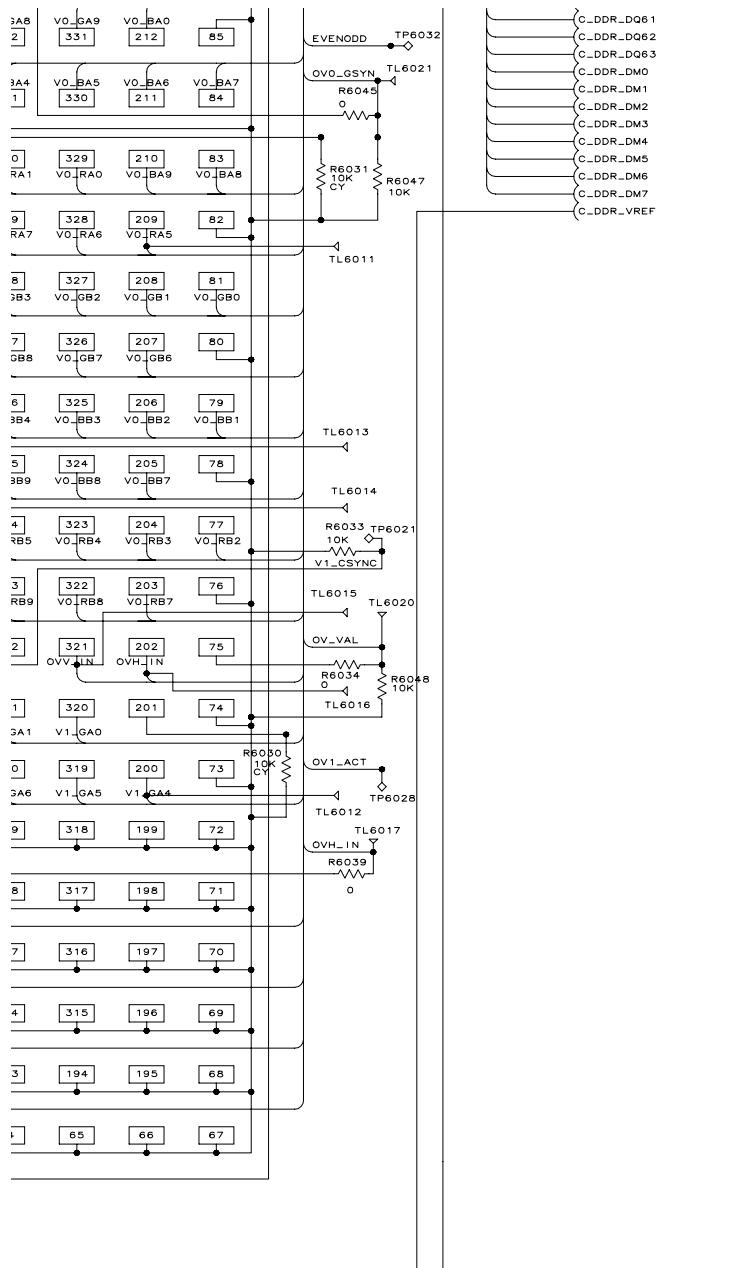
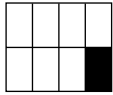


OVV-IN
OV-VAL
OV1_VDDK
OV1-ACK

C6077
22P
CCY

TO PC-BOARD 13/13

DO-HD1 SP
DO-VSYNC
DO-HSYNC
DO-BA0
DO-BA1
DO-BA2
DO-BA3
DO-BA4
DO-BA5
DO-BA6
DO-BA7
DO-BA8
DO-BA9

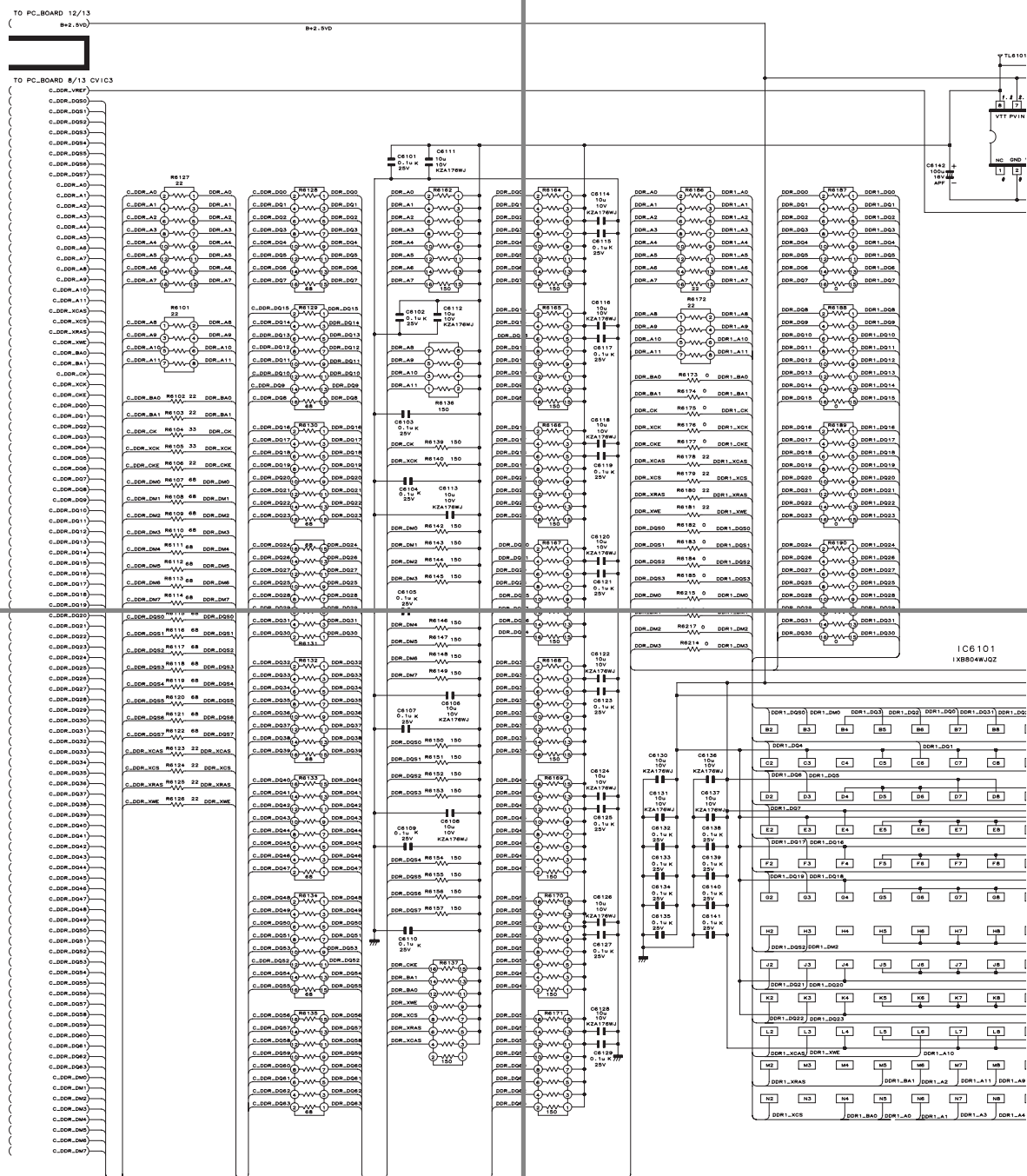


11	12	13	14	15	16	17	18	19
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(1/8) Please peel off and refer to page 12-68.

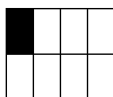
■ PC I/F UNIT-9

(2/8) Please peel off and refer to page 12-69.



(5/8) Please peel off and refer to page 12-72.

(6/8) Please peel off and refer to page 12-73.



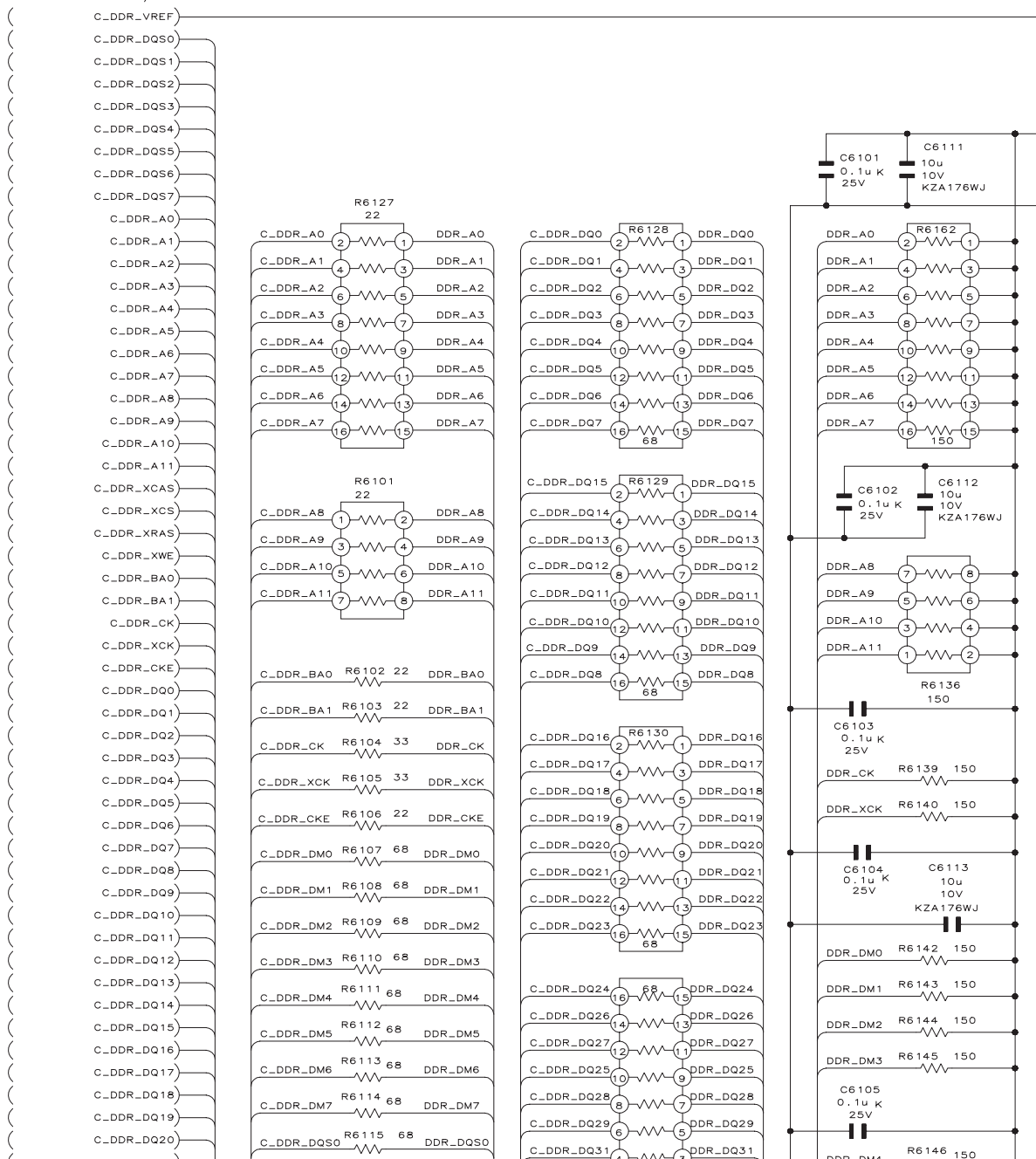
PC I/F UNIT-9

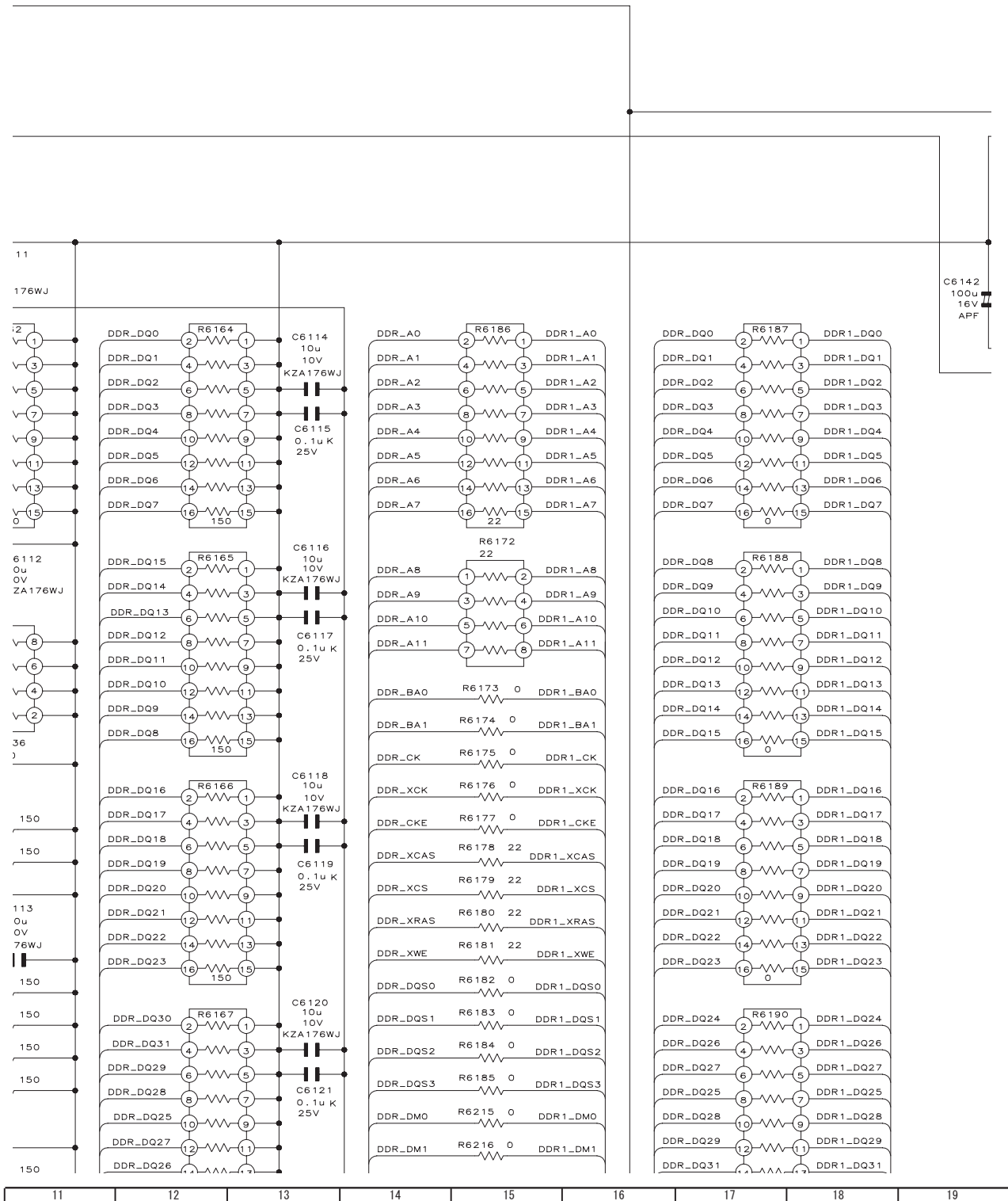
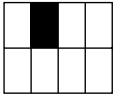
J
I
H
G
F
E
D
C
B
A

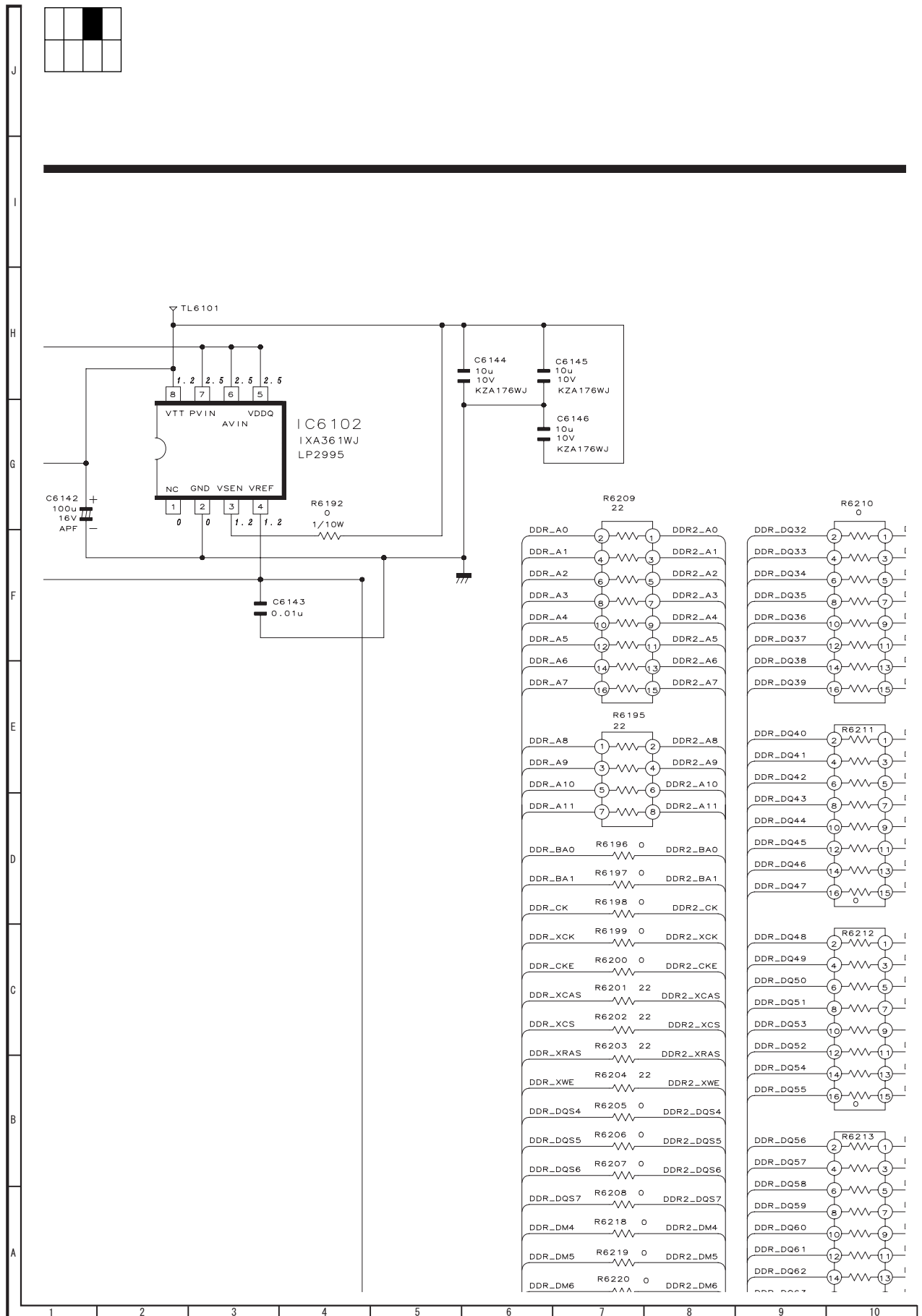
TO PC_BOARD 12/13
(B+2.5VD)

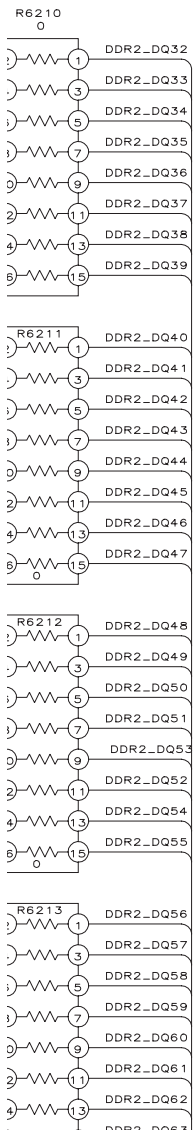
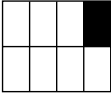
B+2.5VD

TO PC_BOARD 8/13 CVIC3

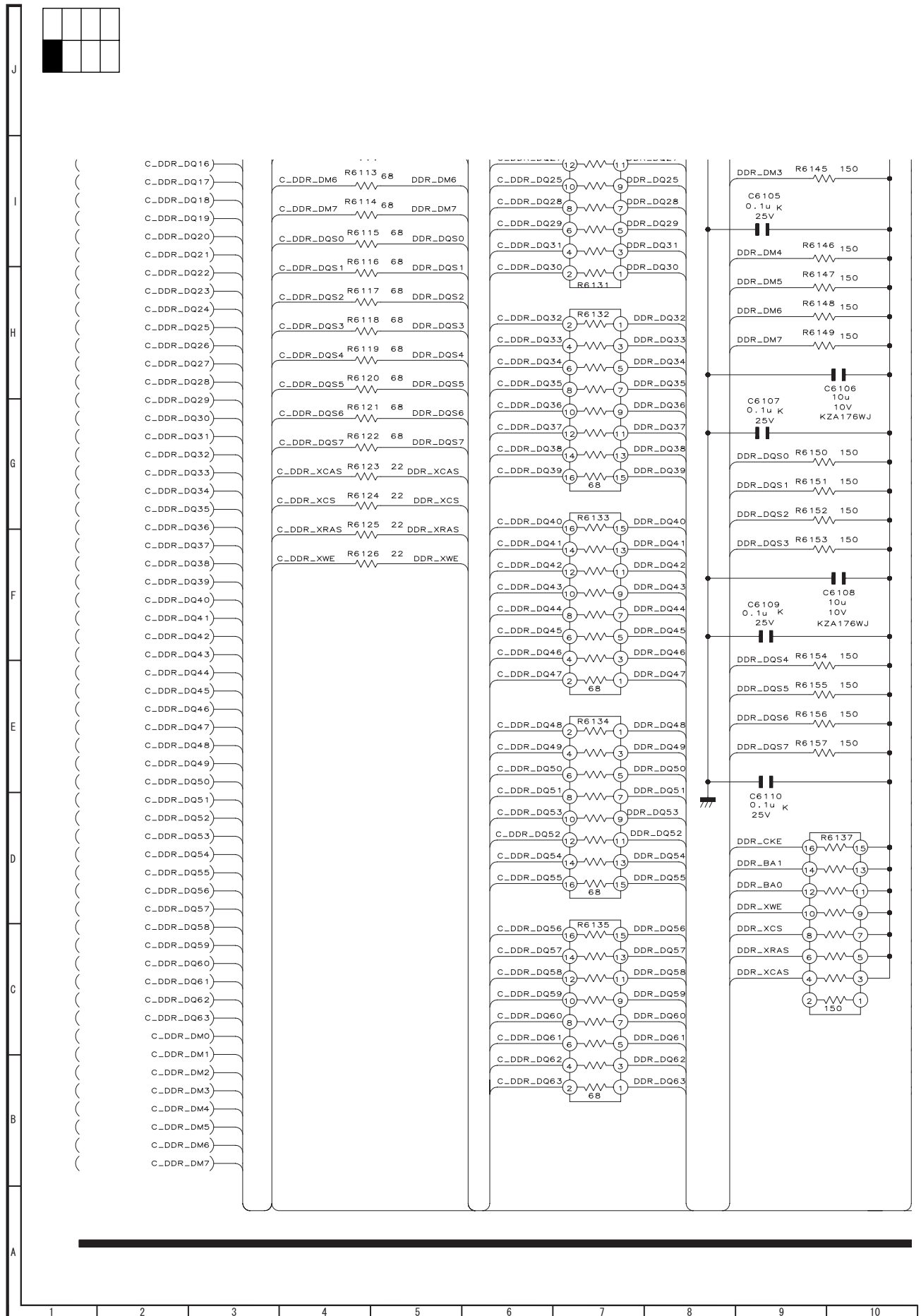


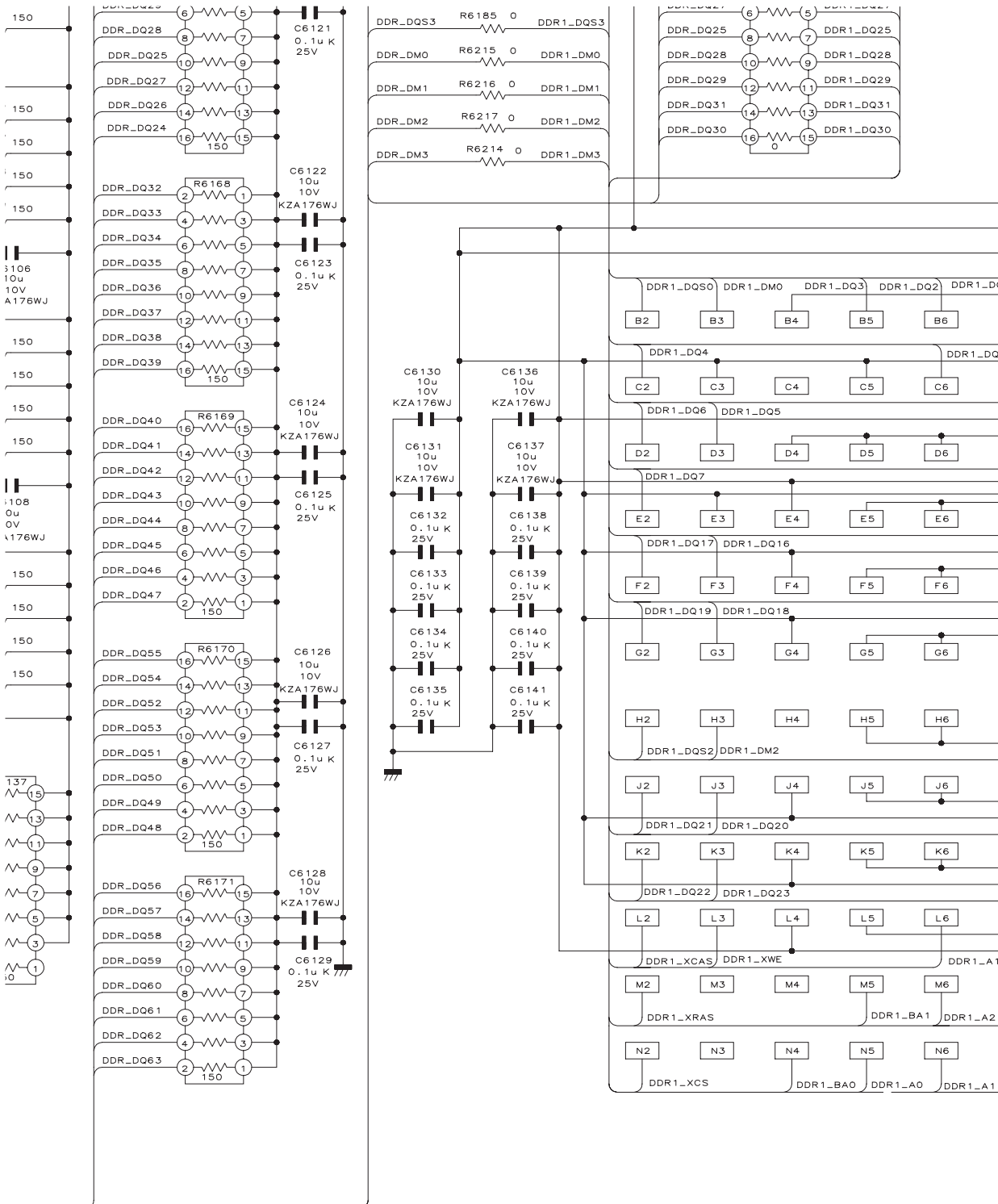
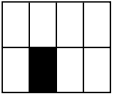


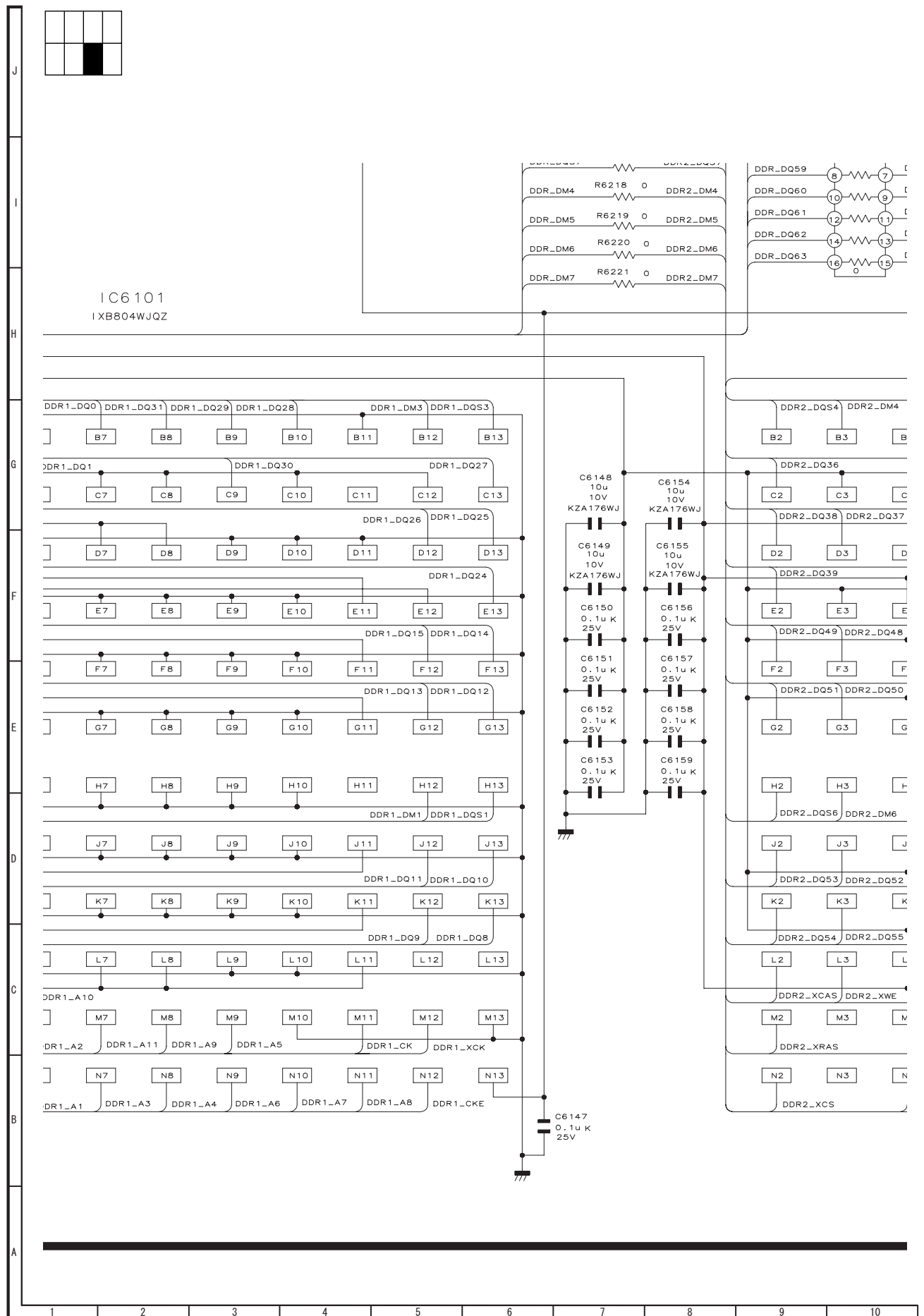


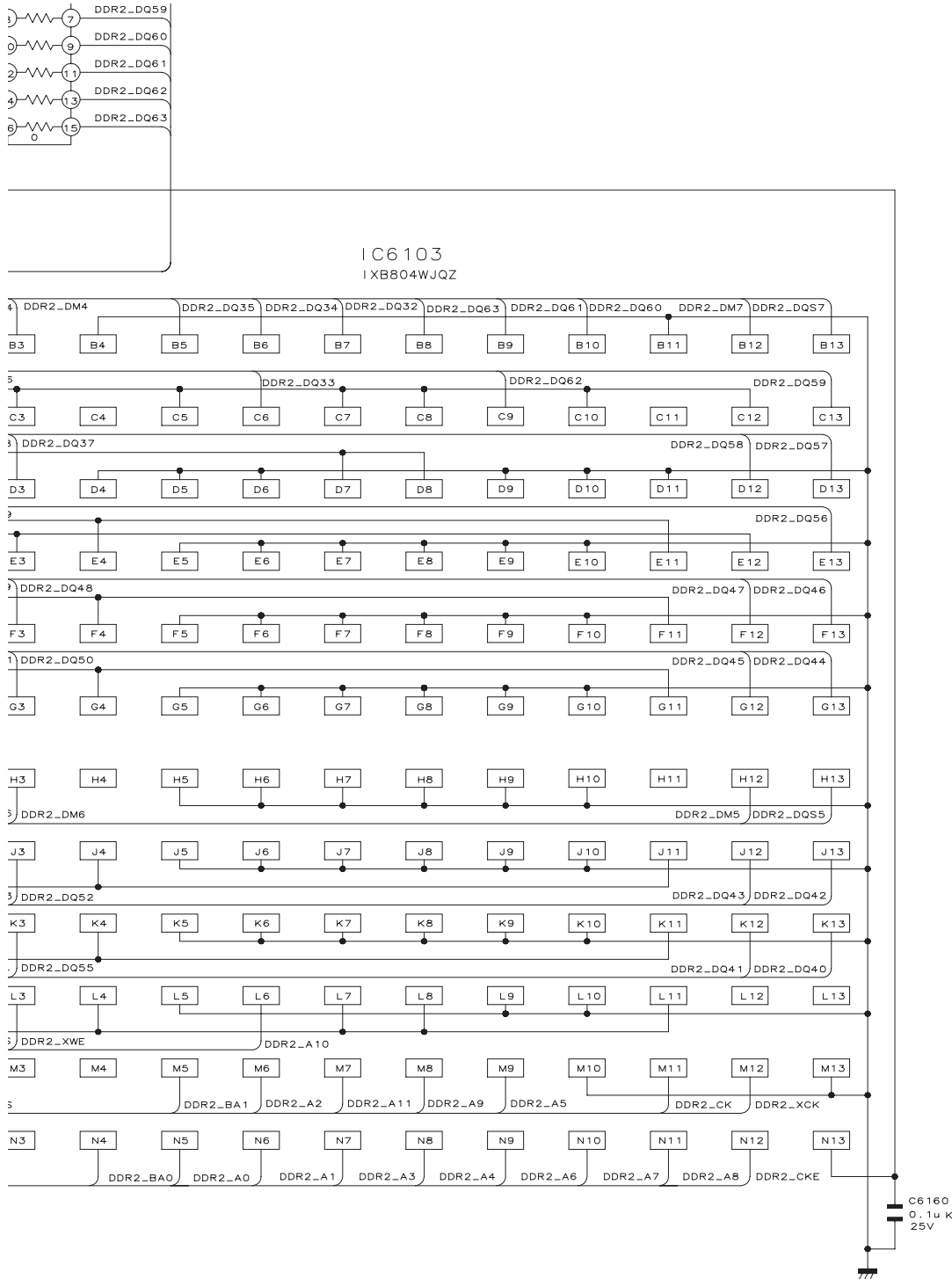
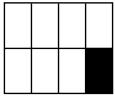


11	12	13	14	15	16	17	18	19
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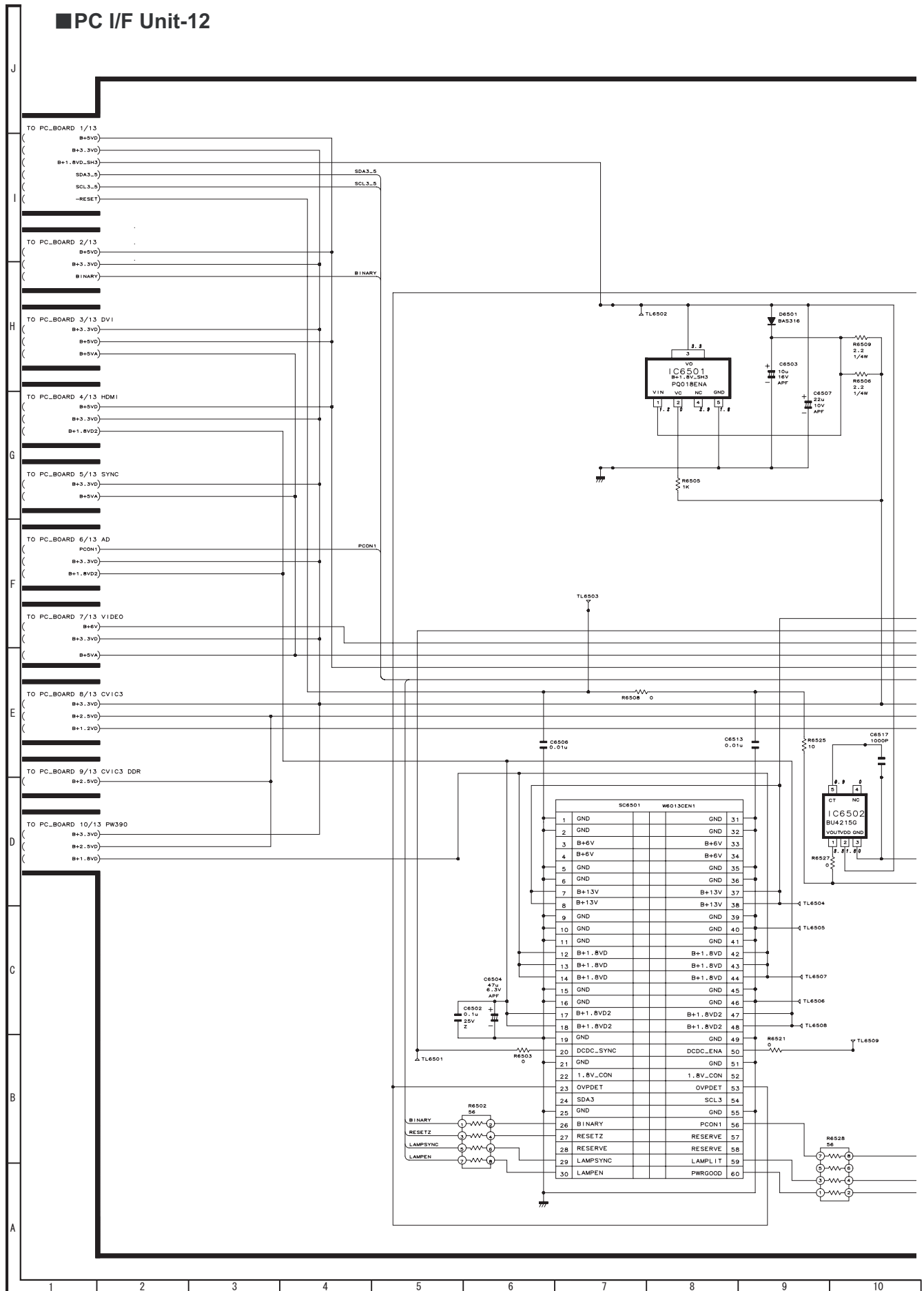






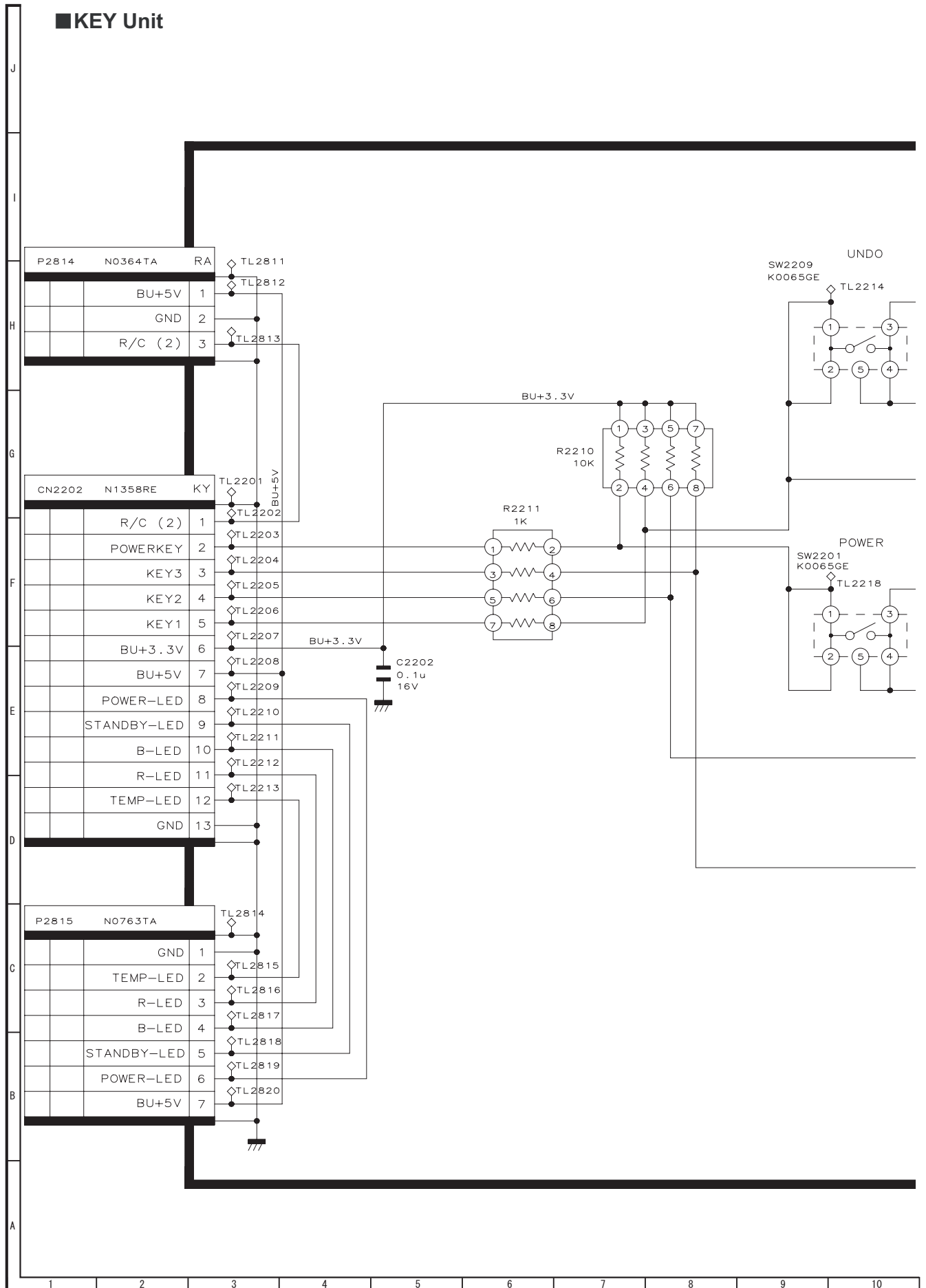


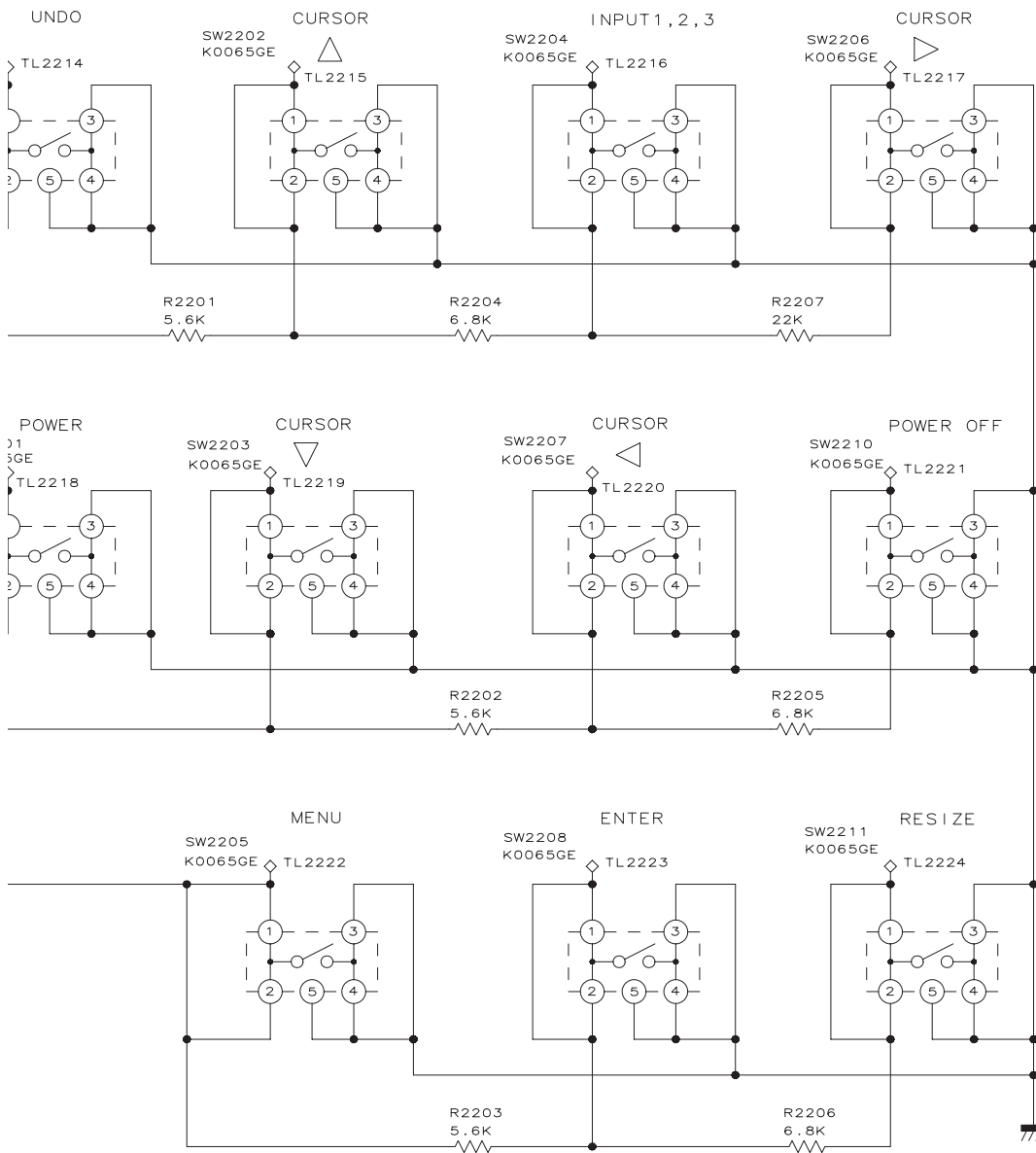
PC I/F Unit-12





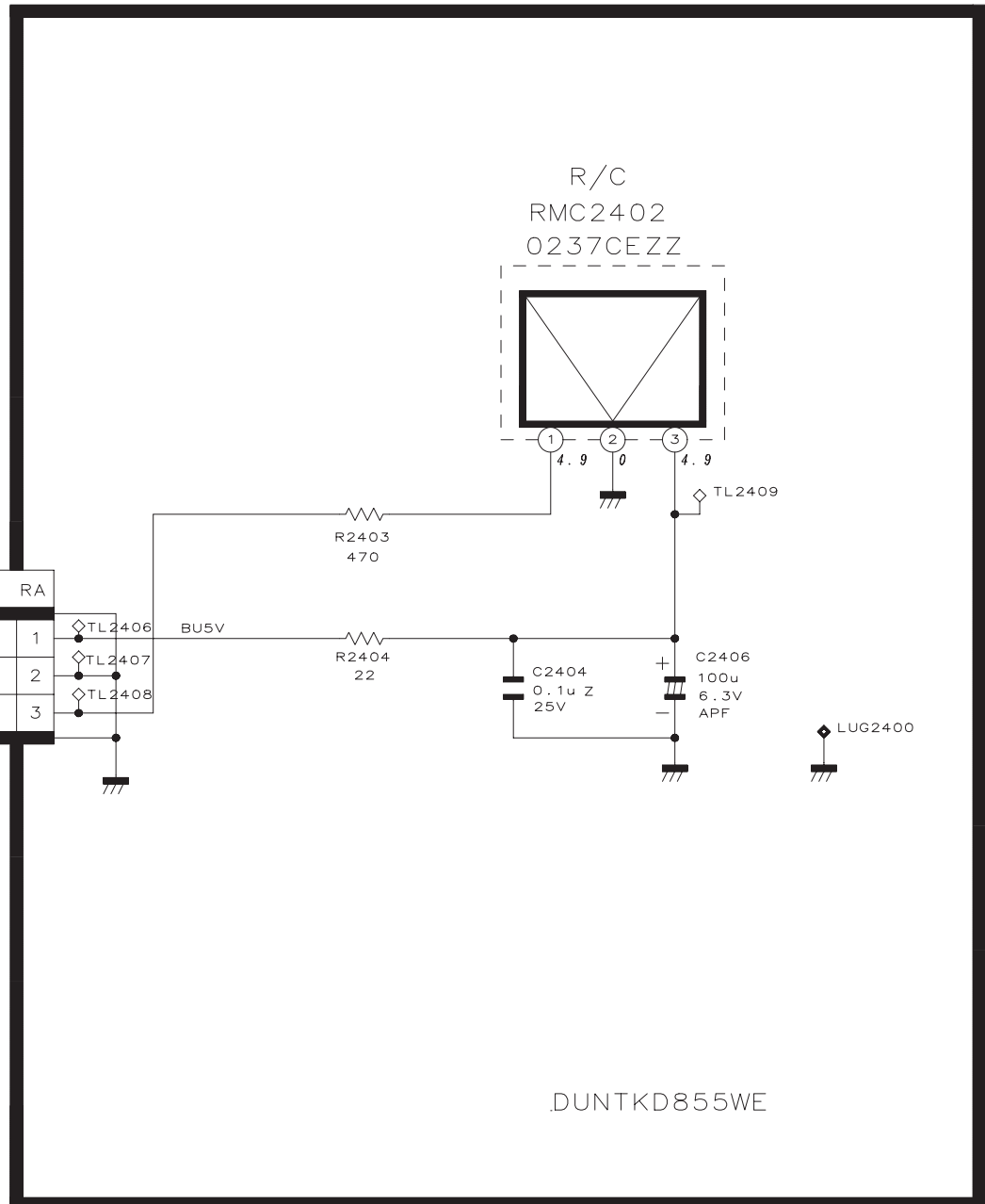
■KEY Unit



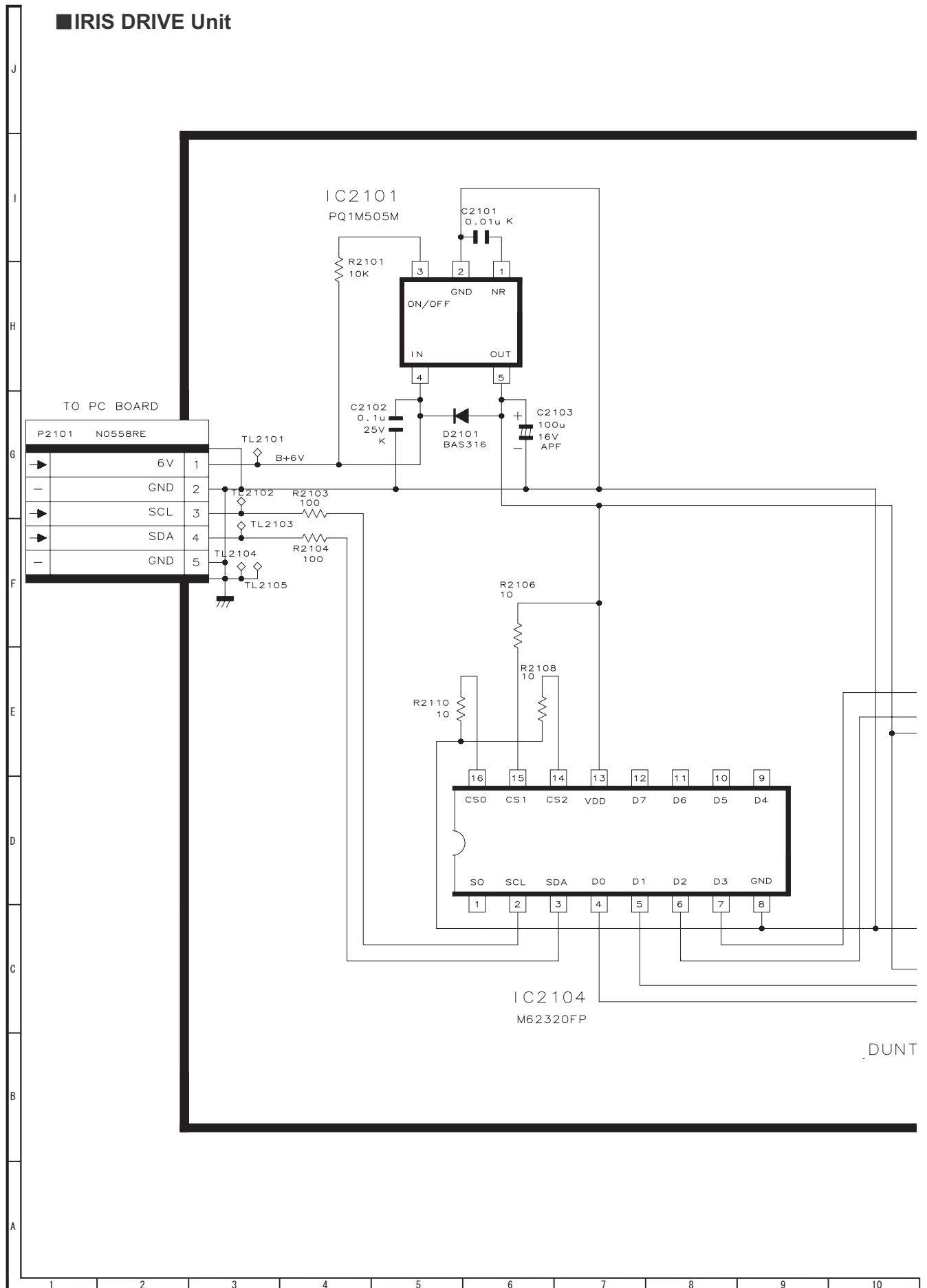


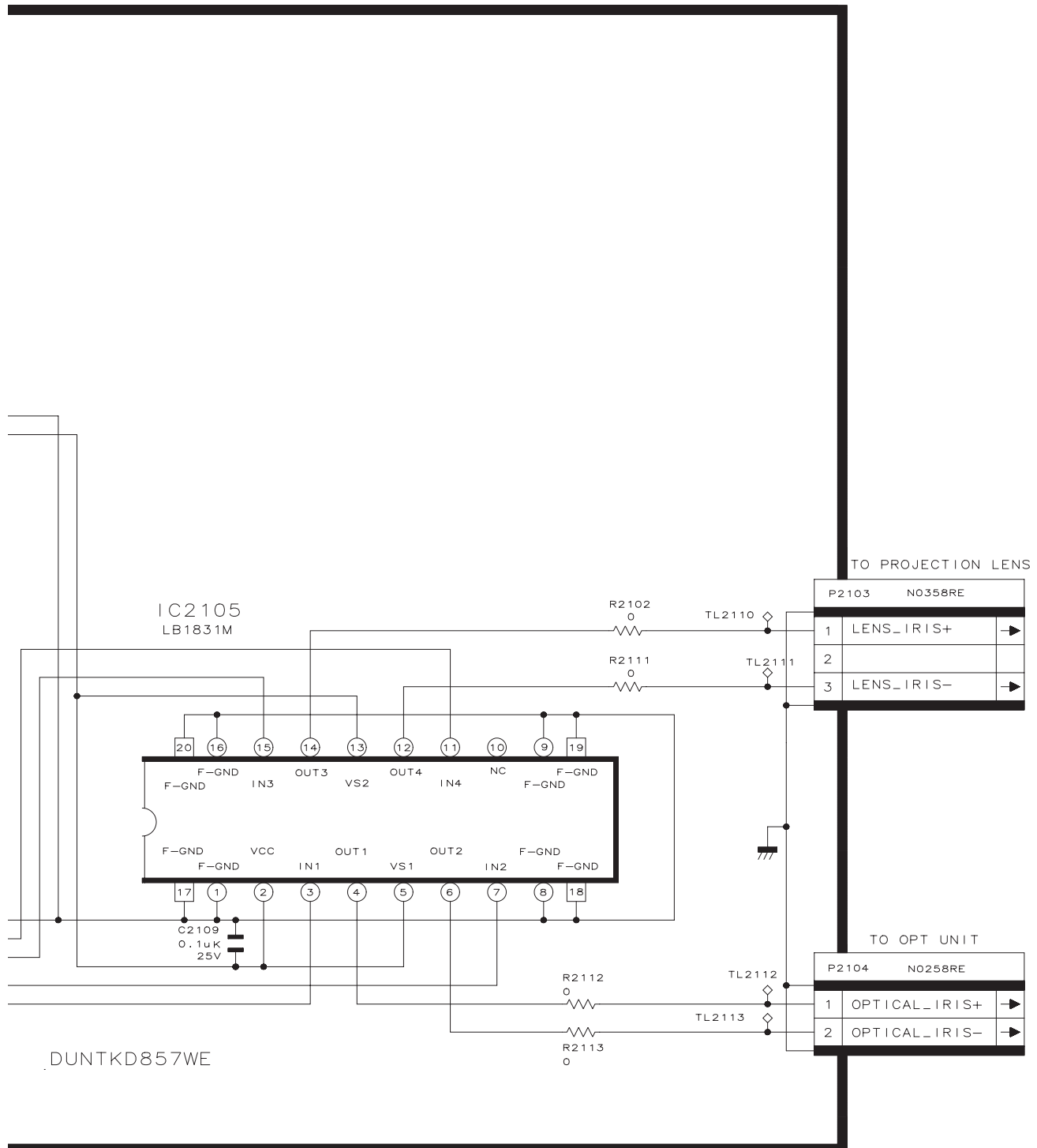
DUNTKD853WEF0

P2402		N0364TA	RA
		BU5V	1
		GND	2
		R/C 1	3



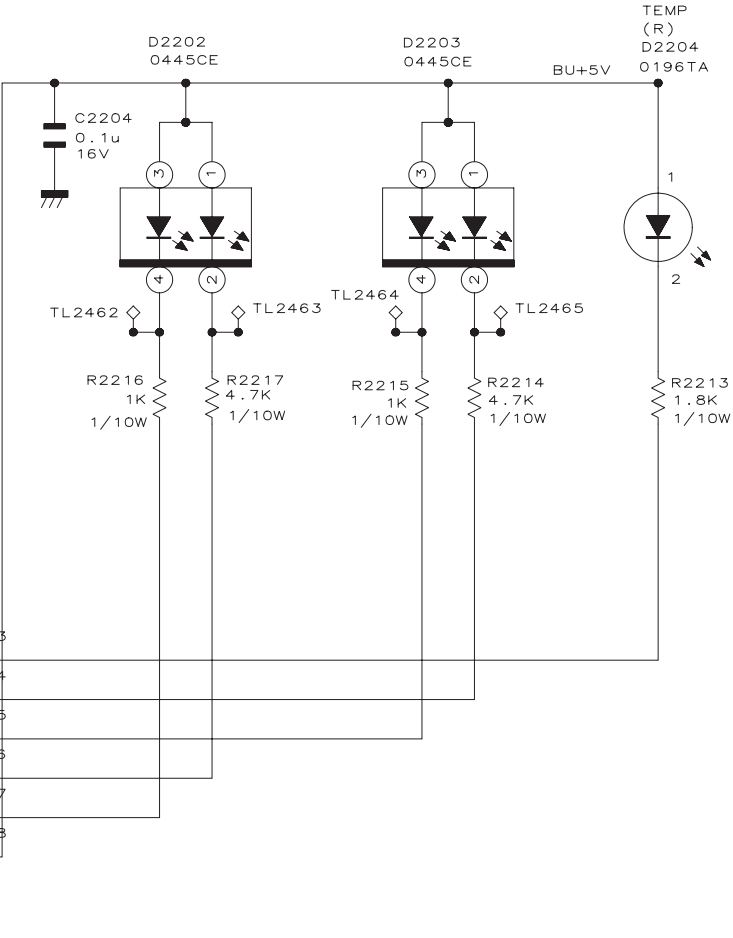
■ IRIS DRIVE Unit





■LED Unit

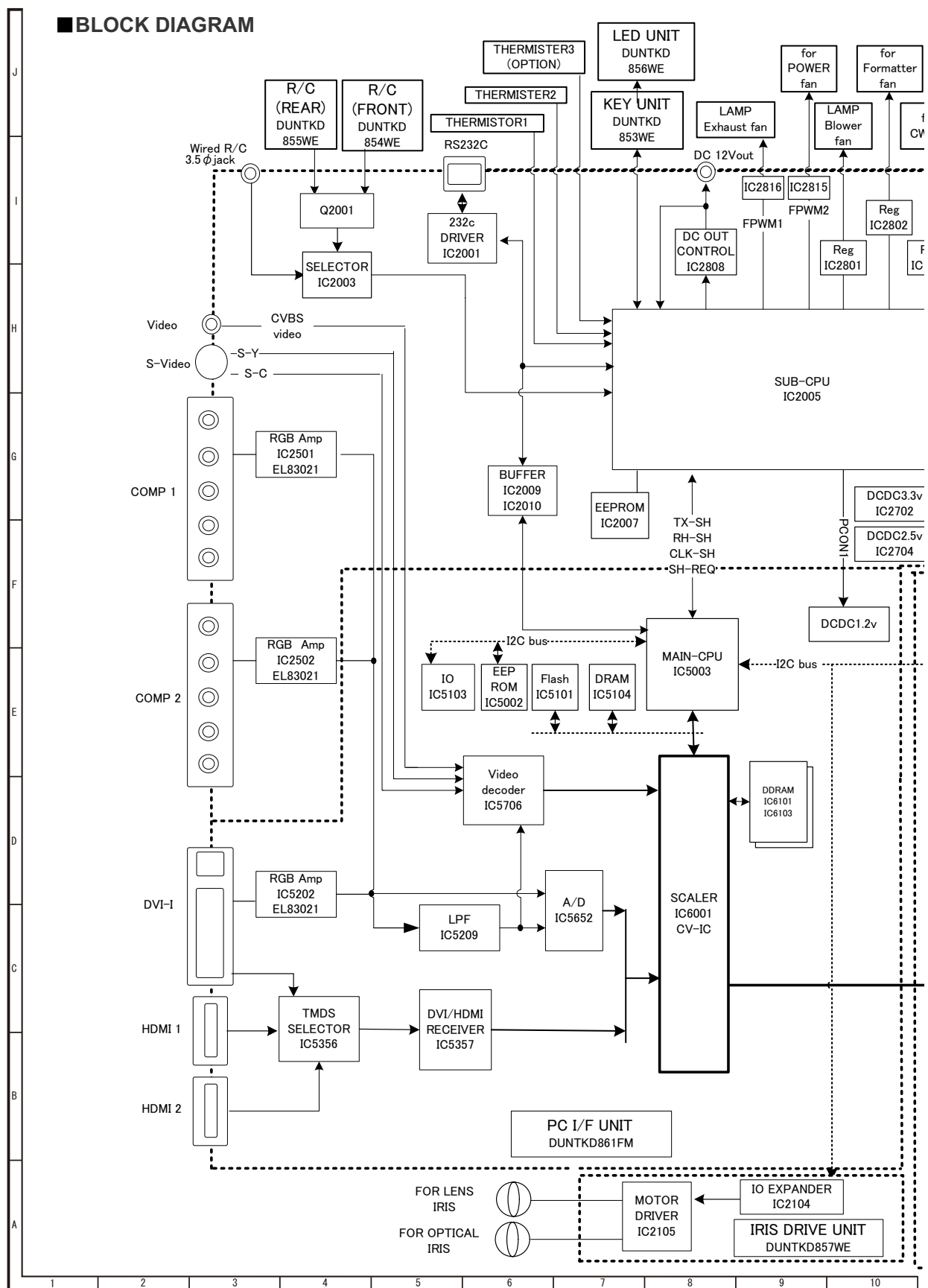
P2450	NO758RE	RE
		GND 1
		TEMP-LED 2
		R-LED 3
		B-LED 4
		STANDBY-LED 5
		POWER-LED 6
		BU+5V 7

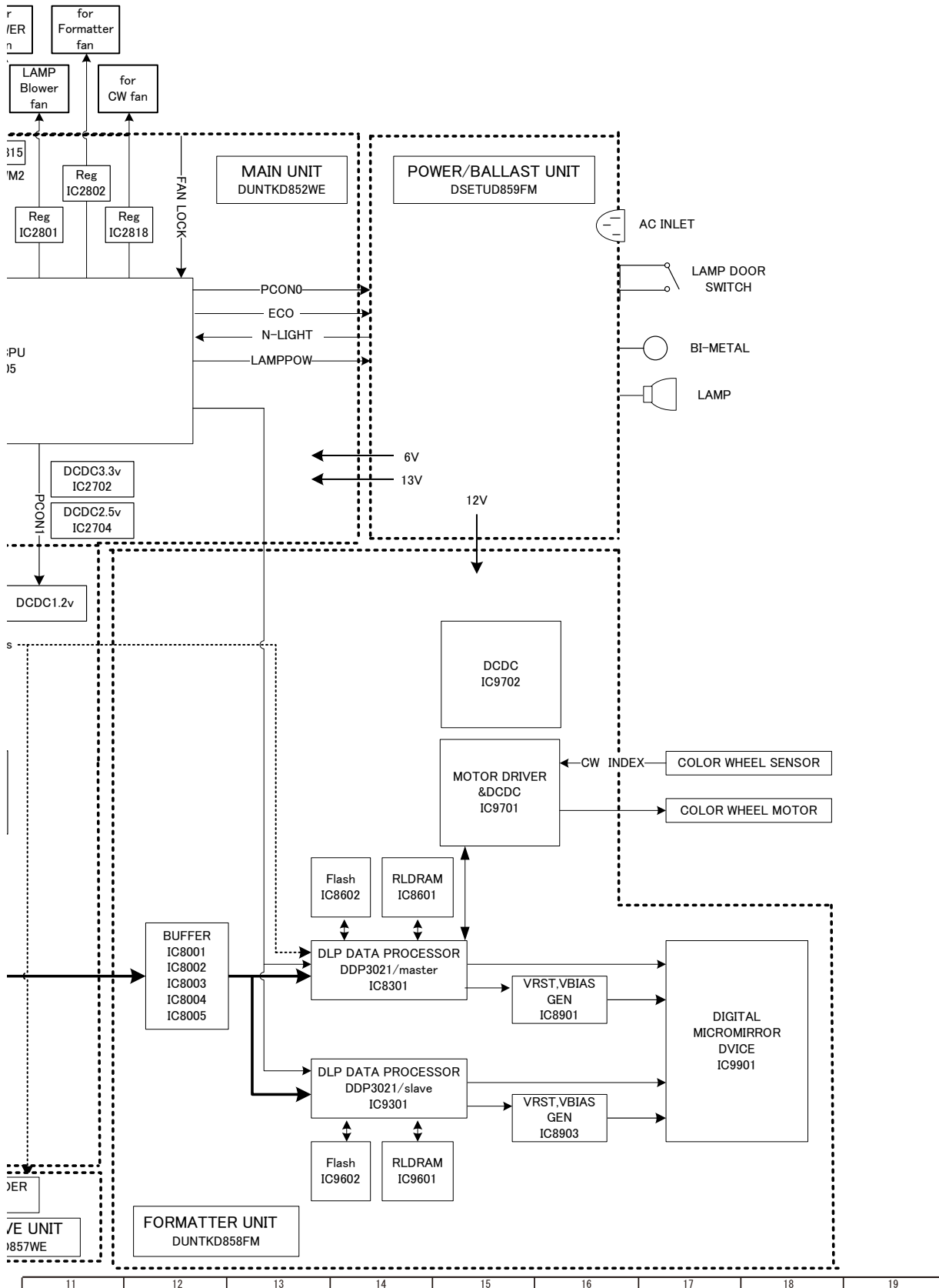


.DUNTKD856WE

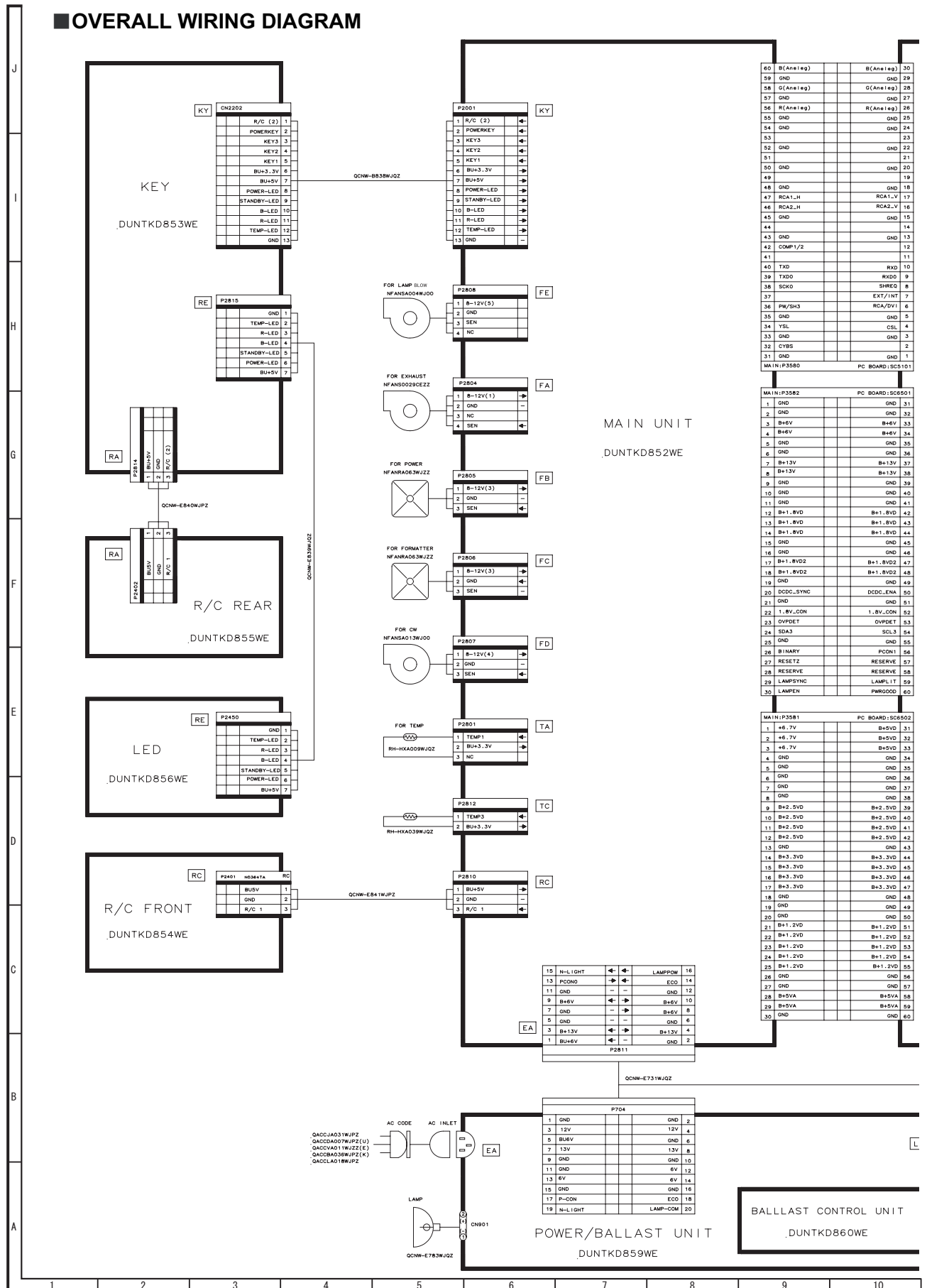
CHAPTER 6. BLOCK DIAGRAM/OVERALL WIRING DIAGRAM

[1] BLOCK DIAGRAM



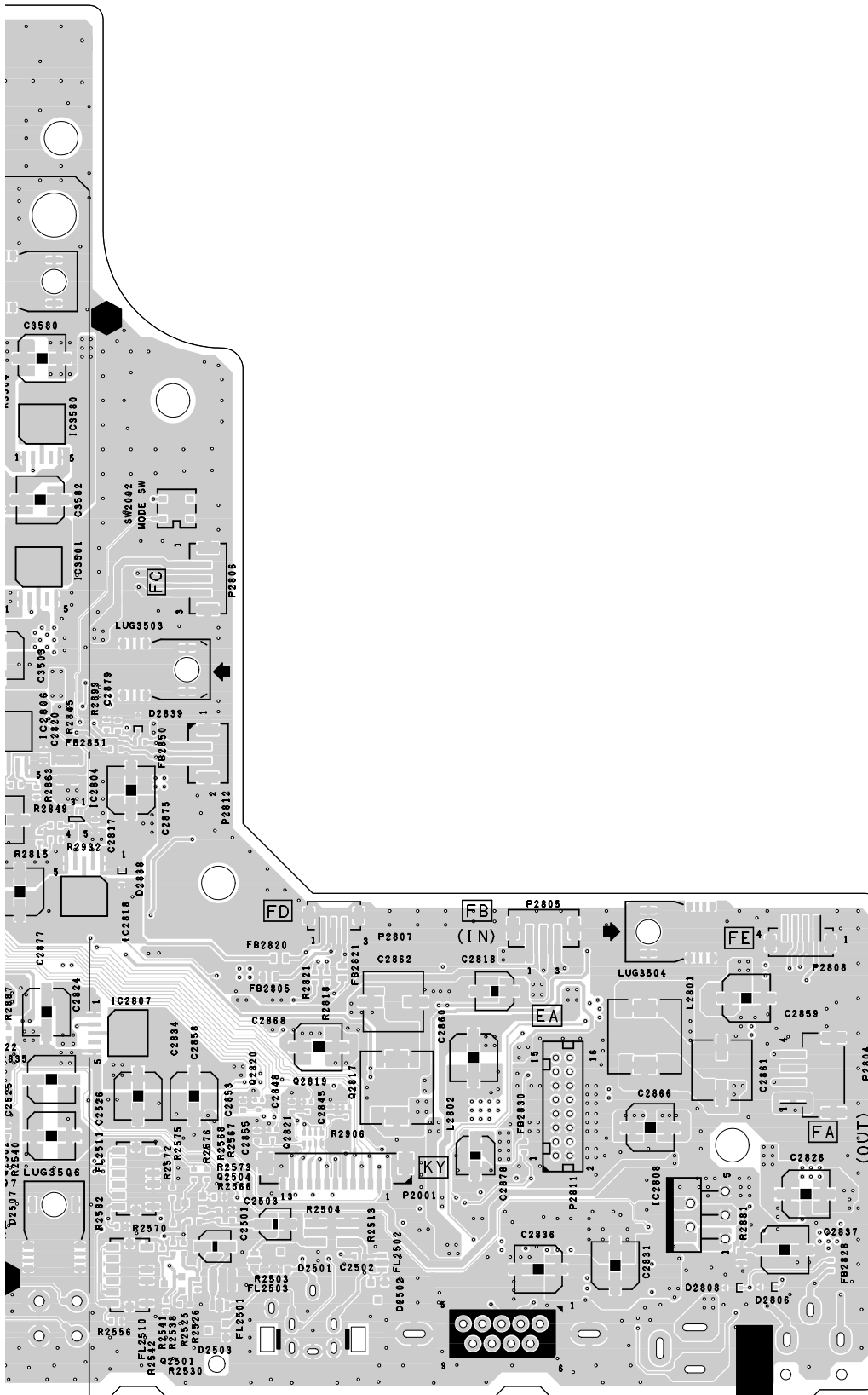


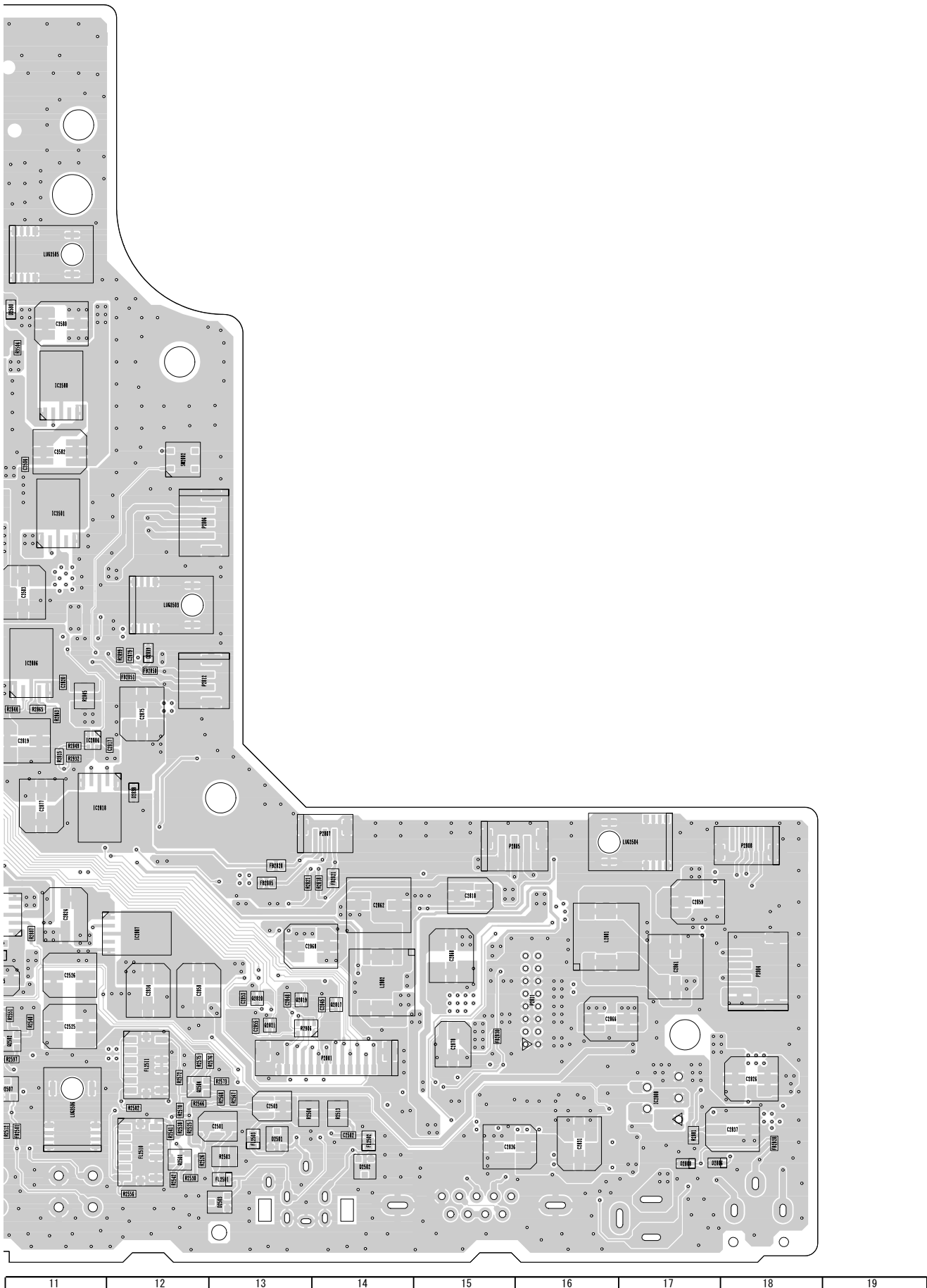
[2] OVERALL WIRING DIAGRAM



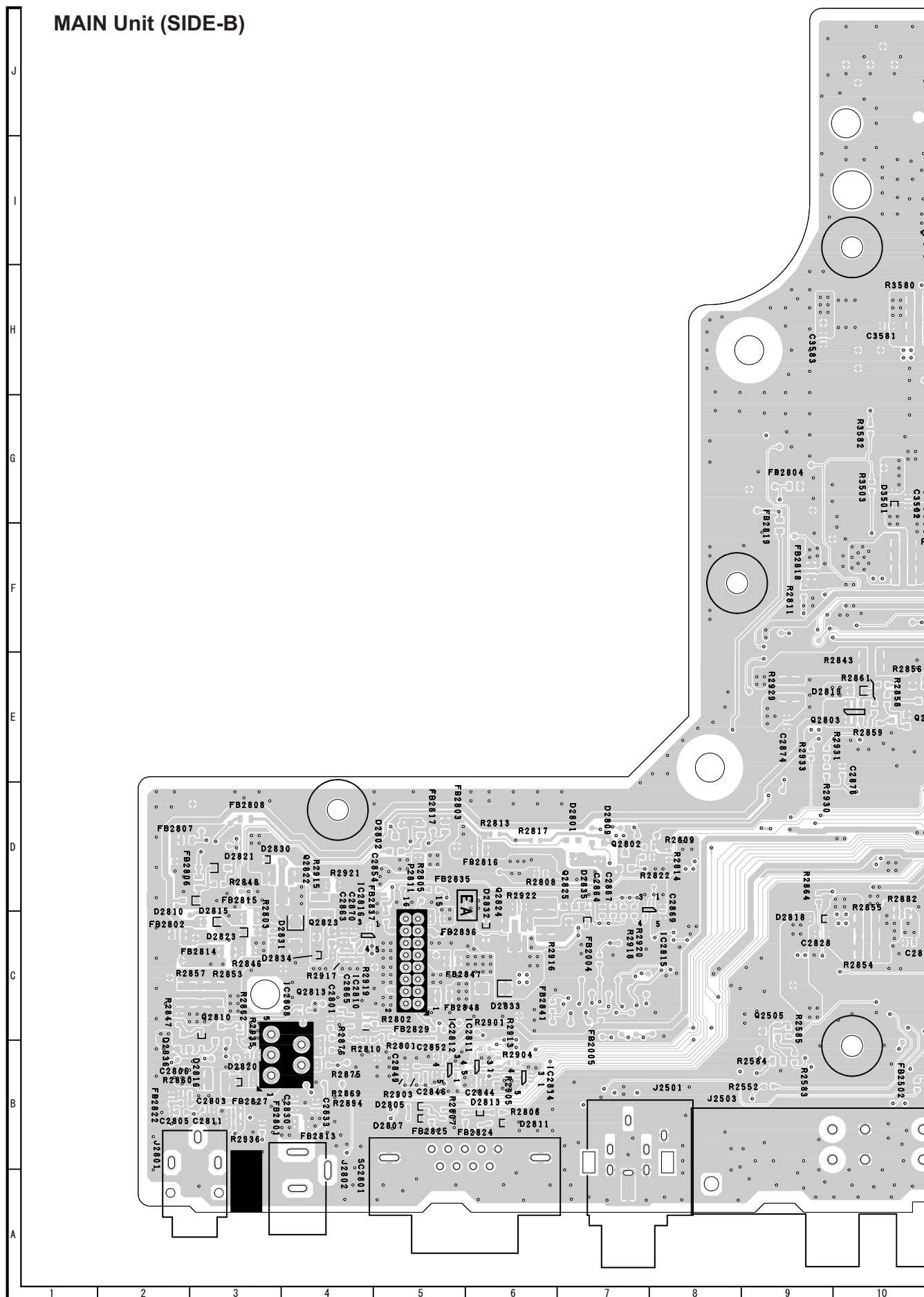
[1] MAIN Unit

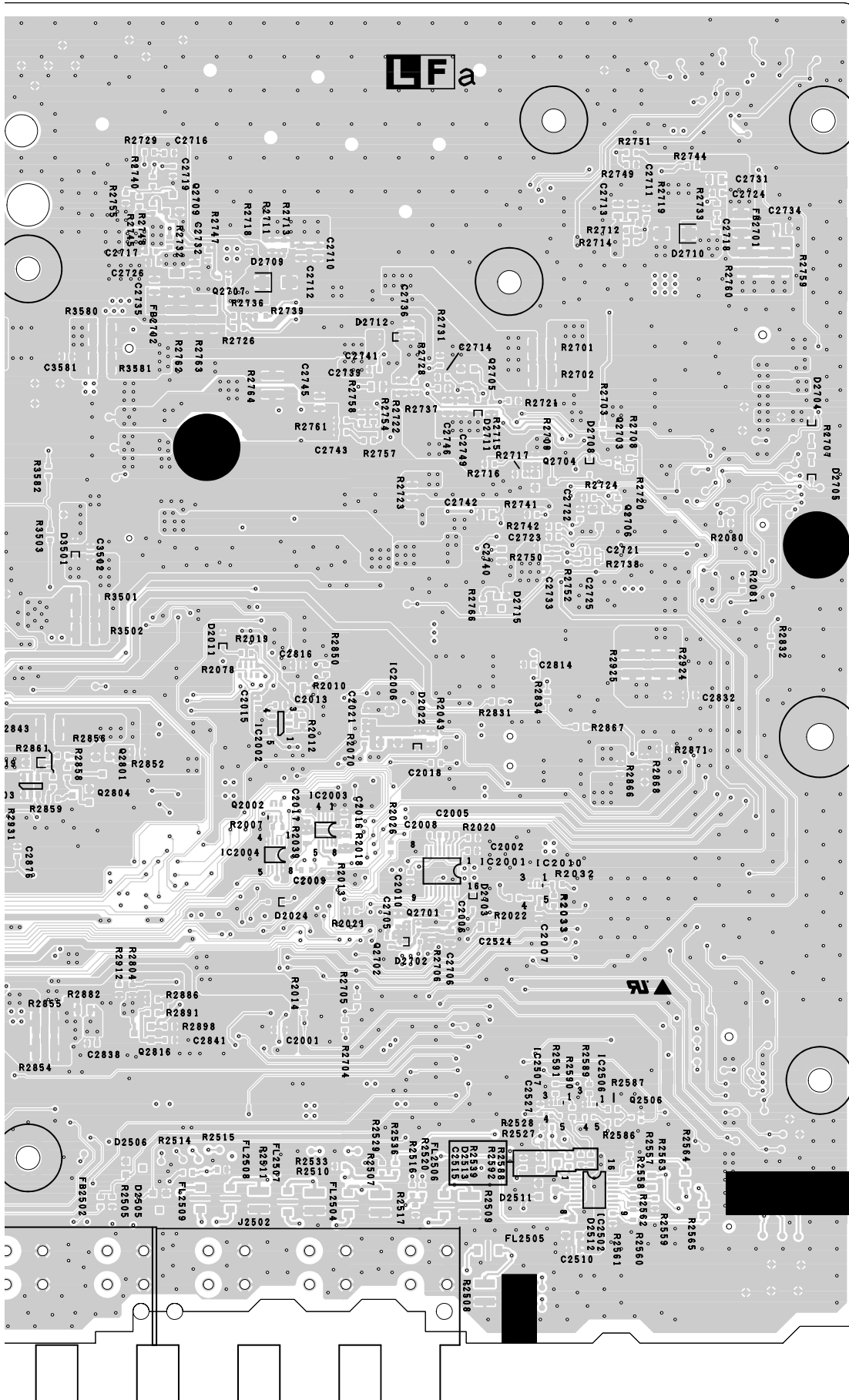
The image shows a top-down view of a computer motherboard. The board is populated with numerous components, including integrated circuits (ICs), capacitors, resistors, and connectors. Key features include a CPU socket at the top center, a RAM slot on the left, and various expansion slots. The board is labeled with 'DUNTKD852WE' and 'CPU Ver A B C D E F G H'. The image is framed by a grid with letters A-H and numbers 1-10.

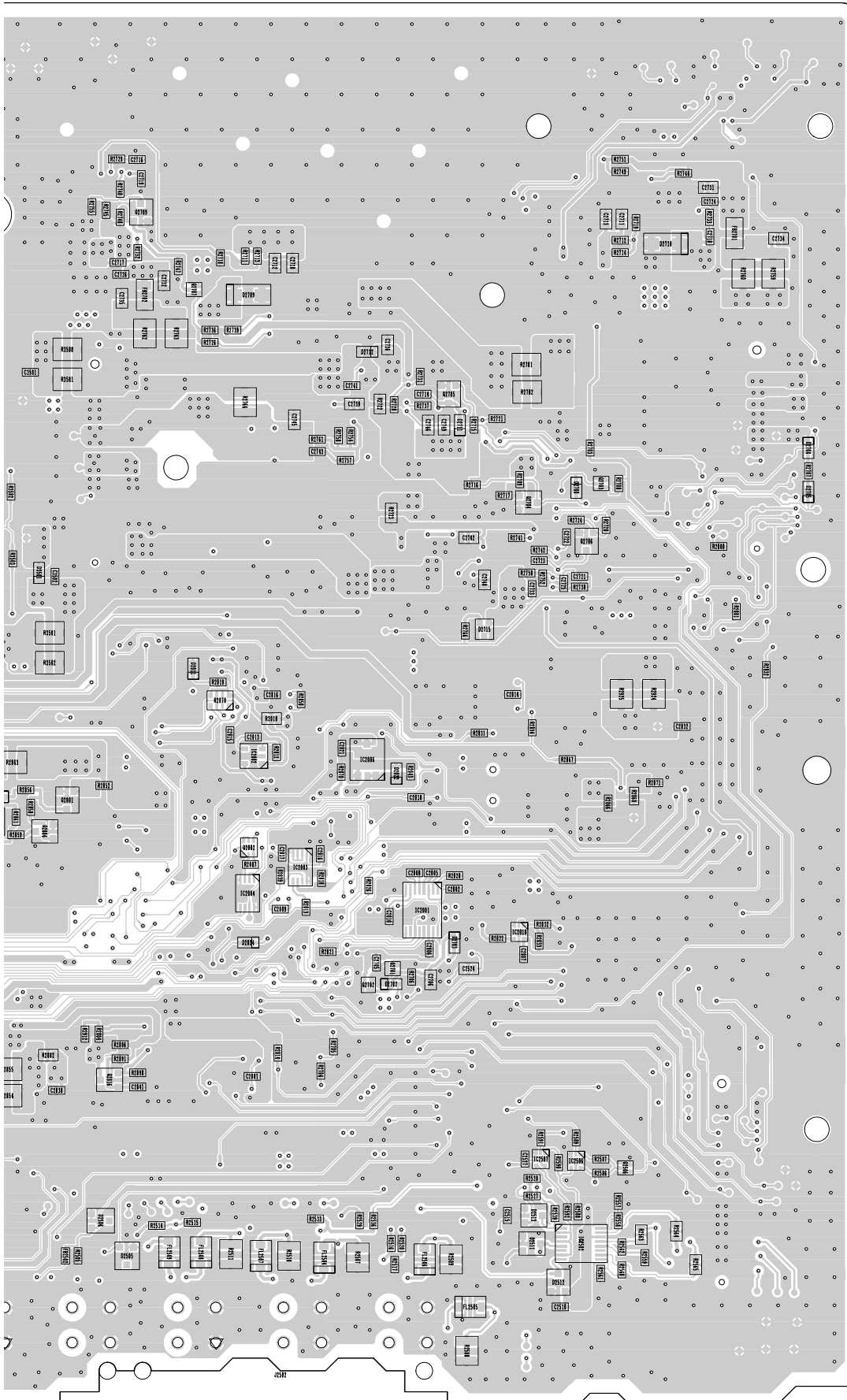




MAIN Unit (SIDE-B)



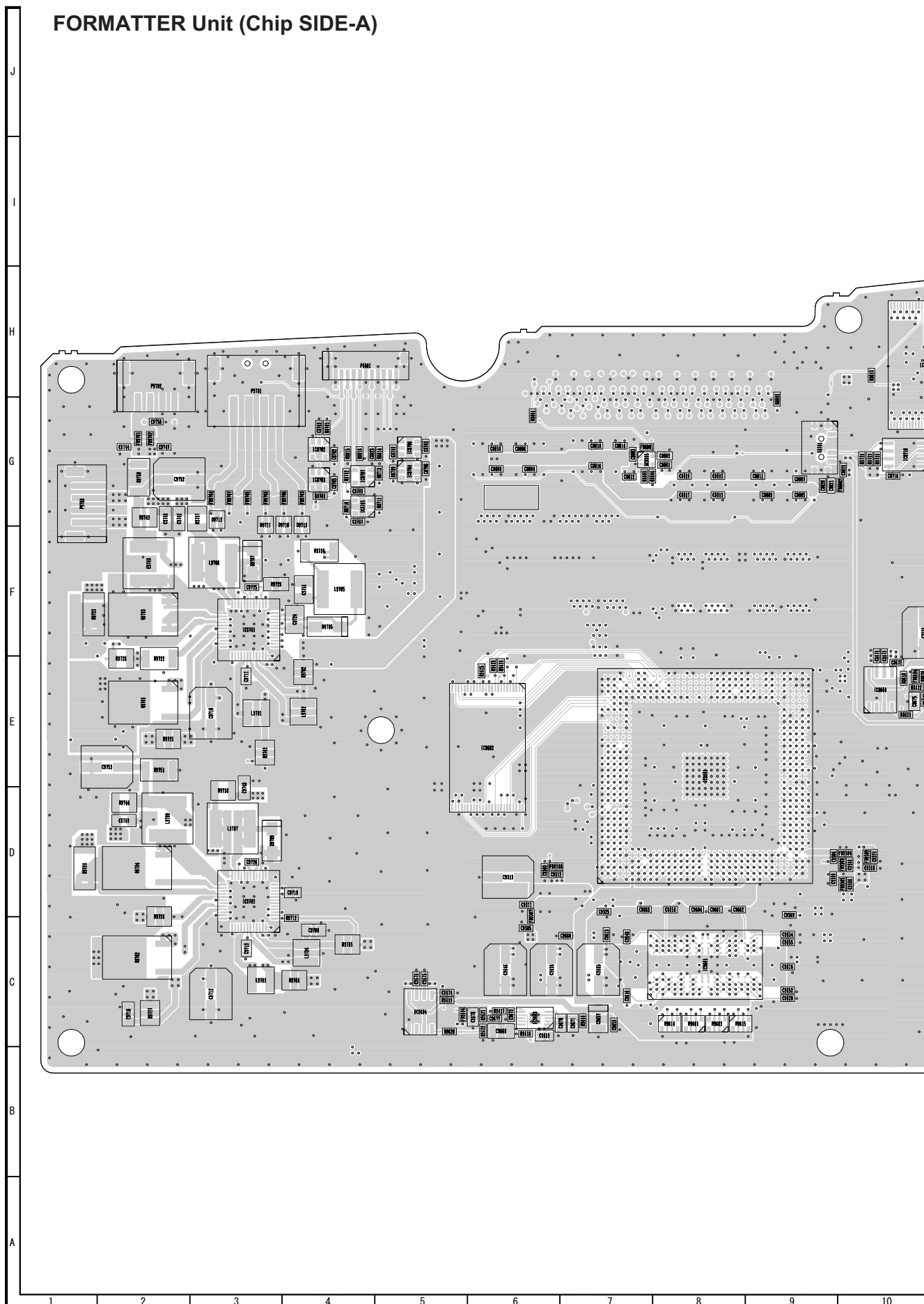


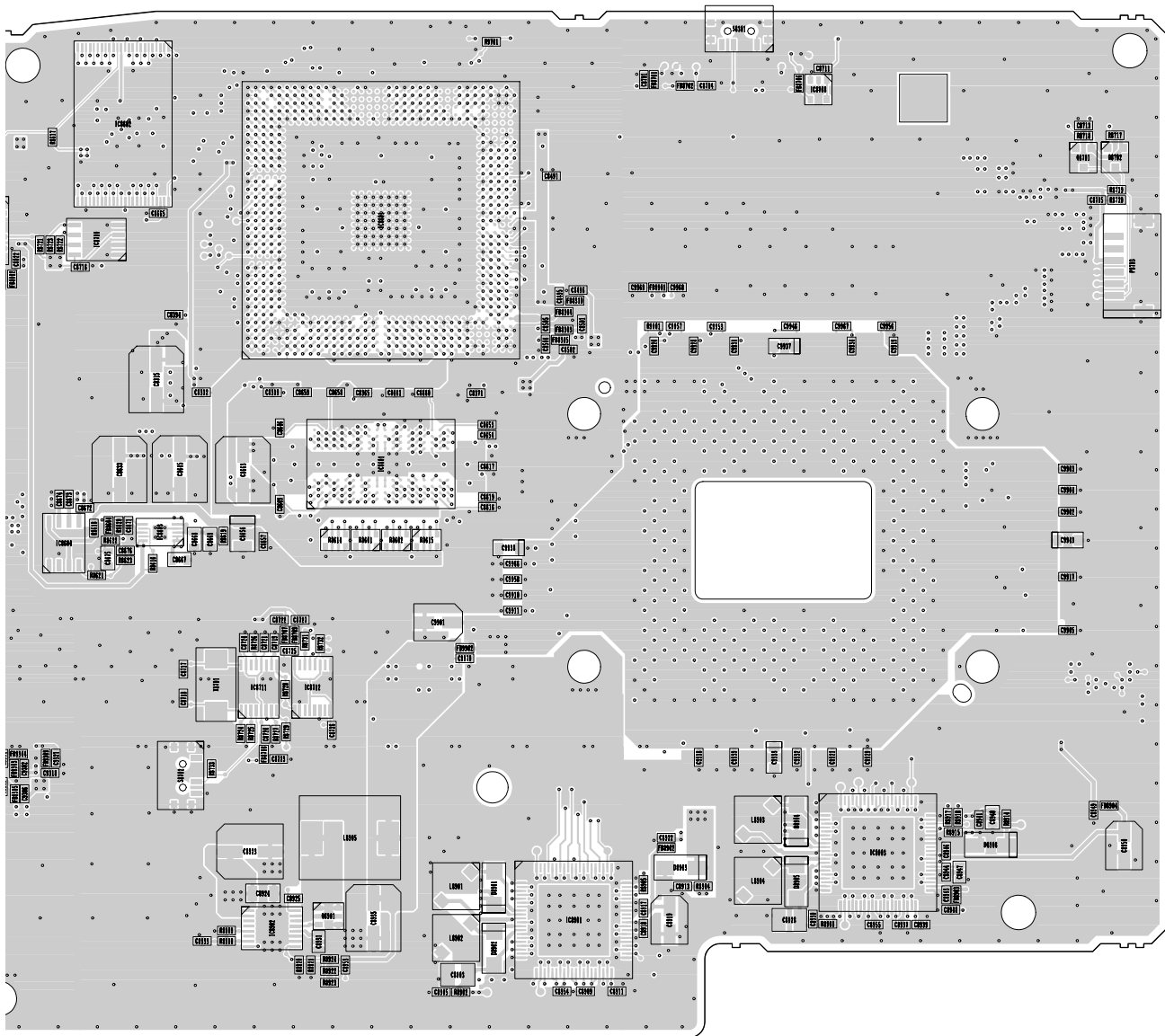


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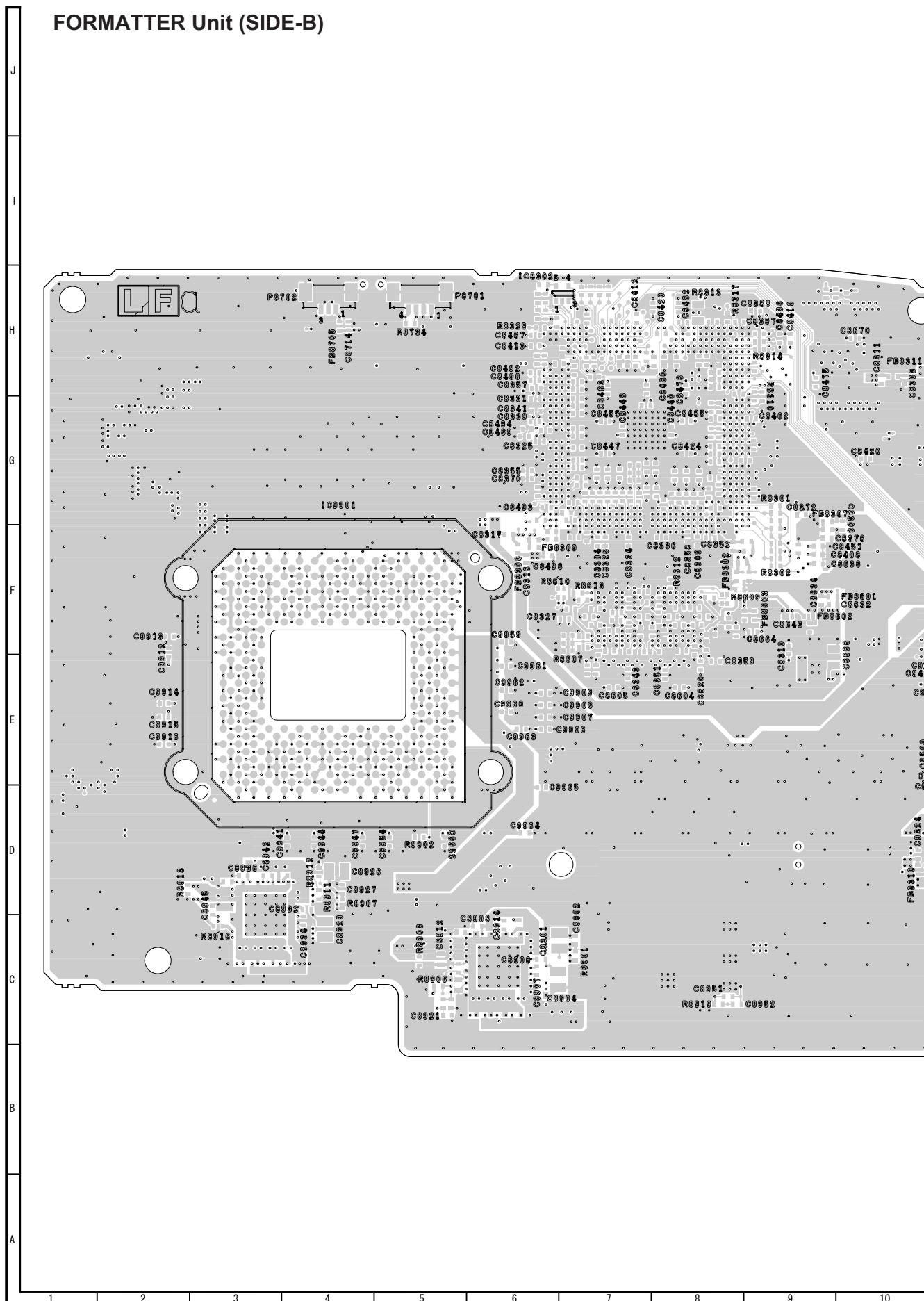
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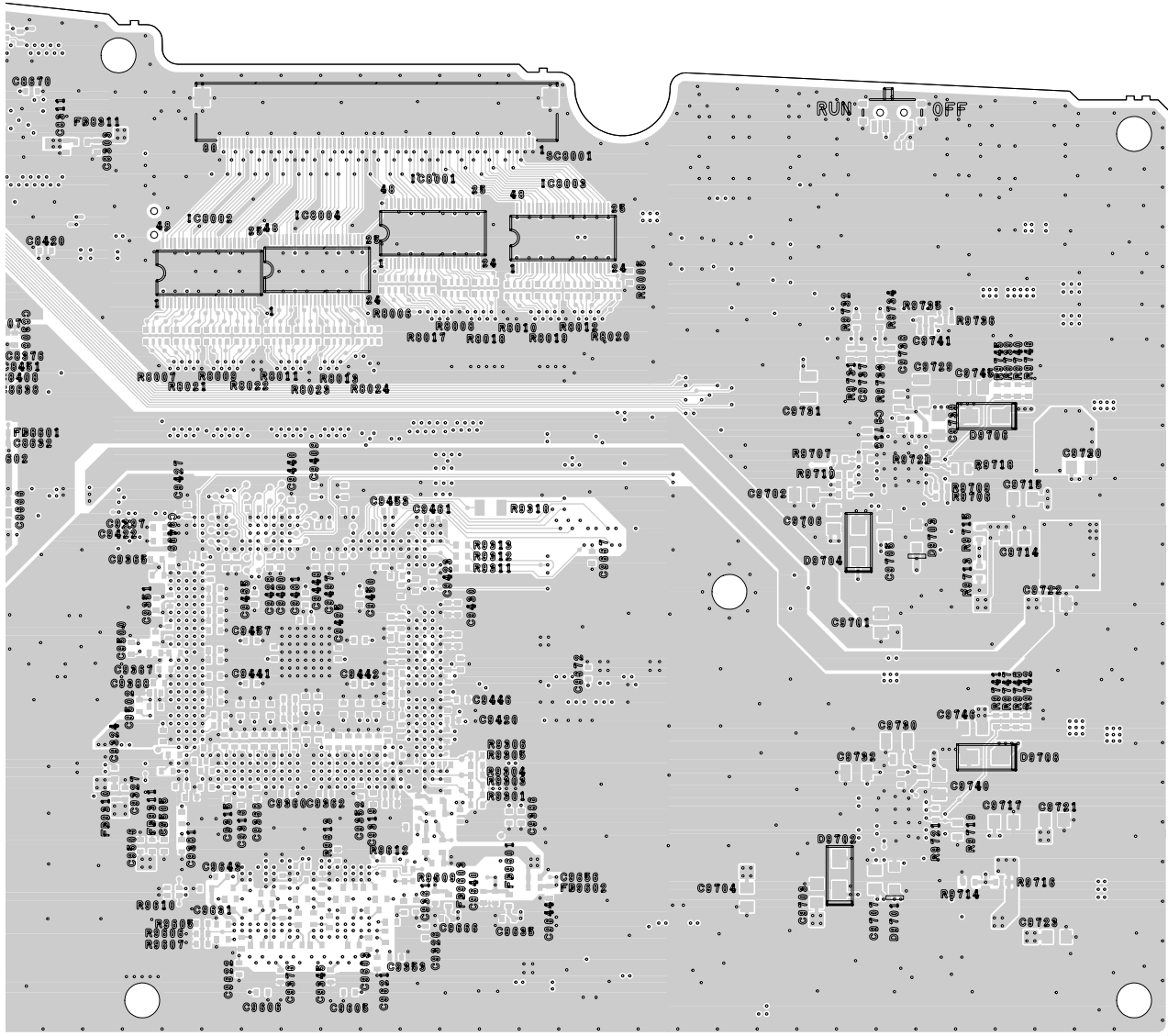
FORMATTER Unit (Chip SIDE-A)



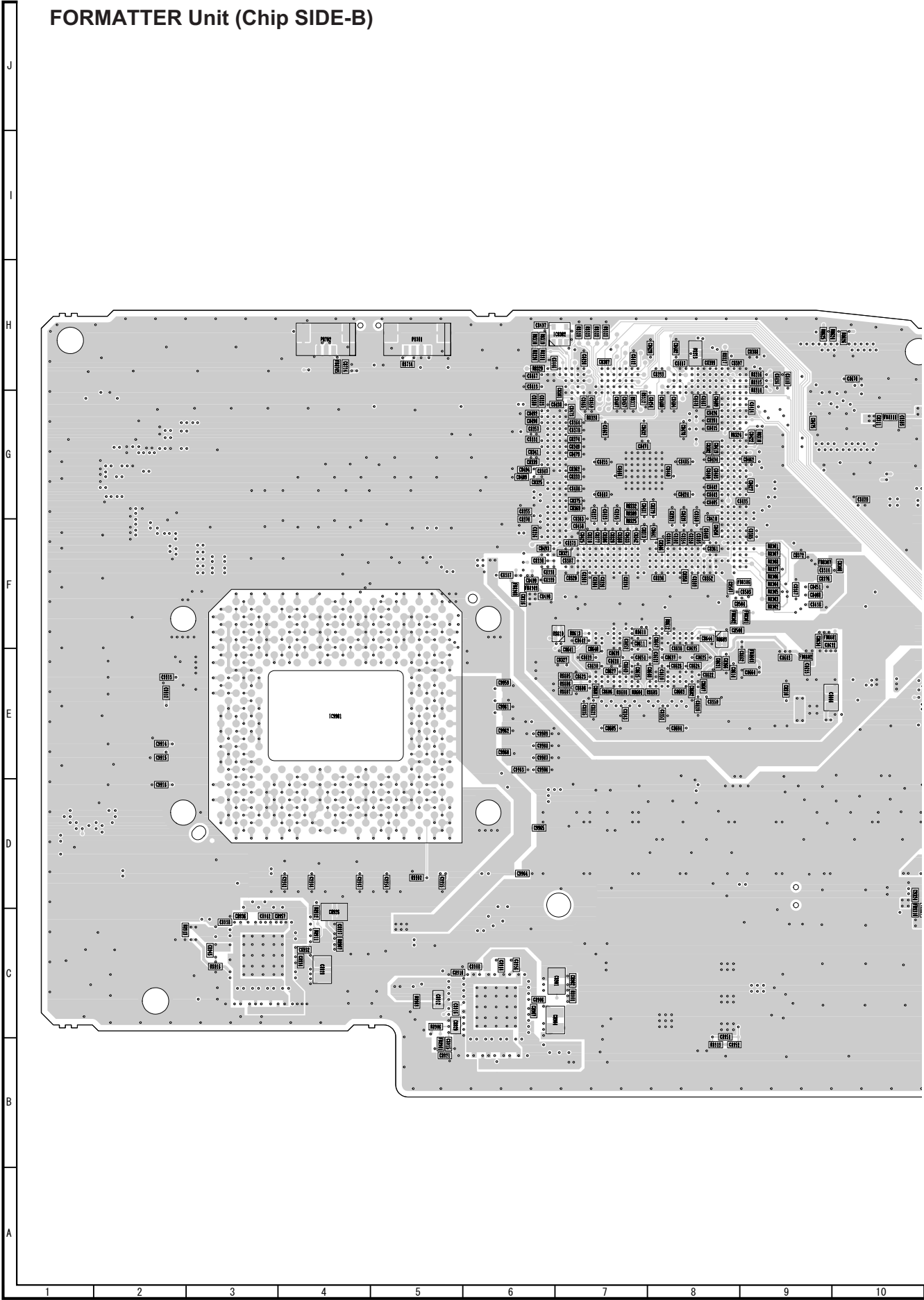


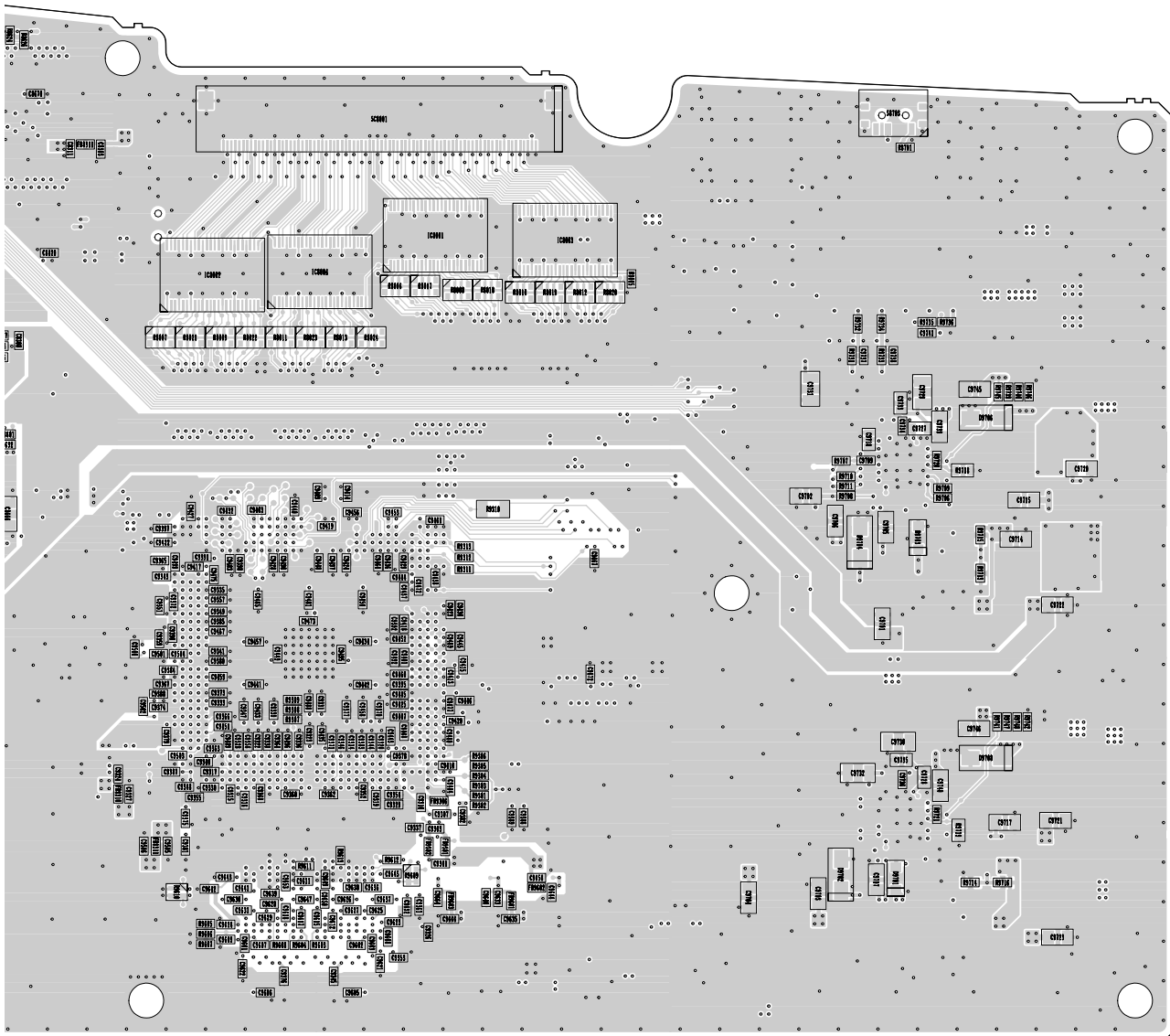
FORMATTER Unit (SIDE-B)





FORMATTER Unit (Chip SIDE-B)





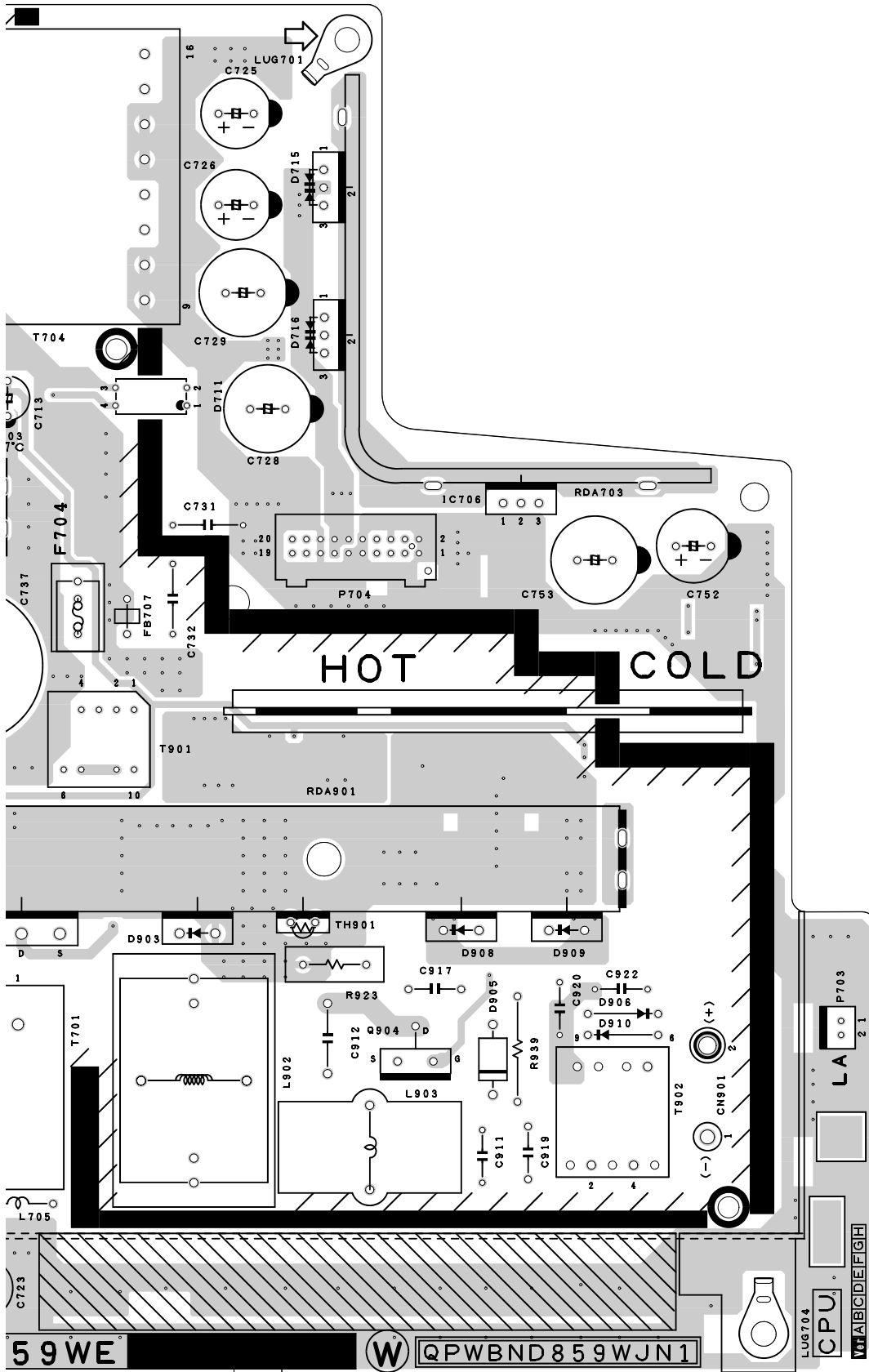
11	12	13	14	15	16	17	18	19
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POWER/BALLAST Unit (SIDE-A)

Component Labels:

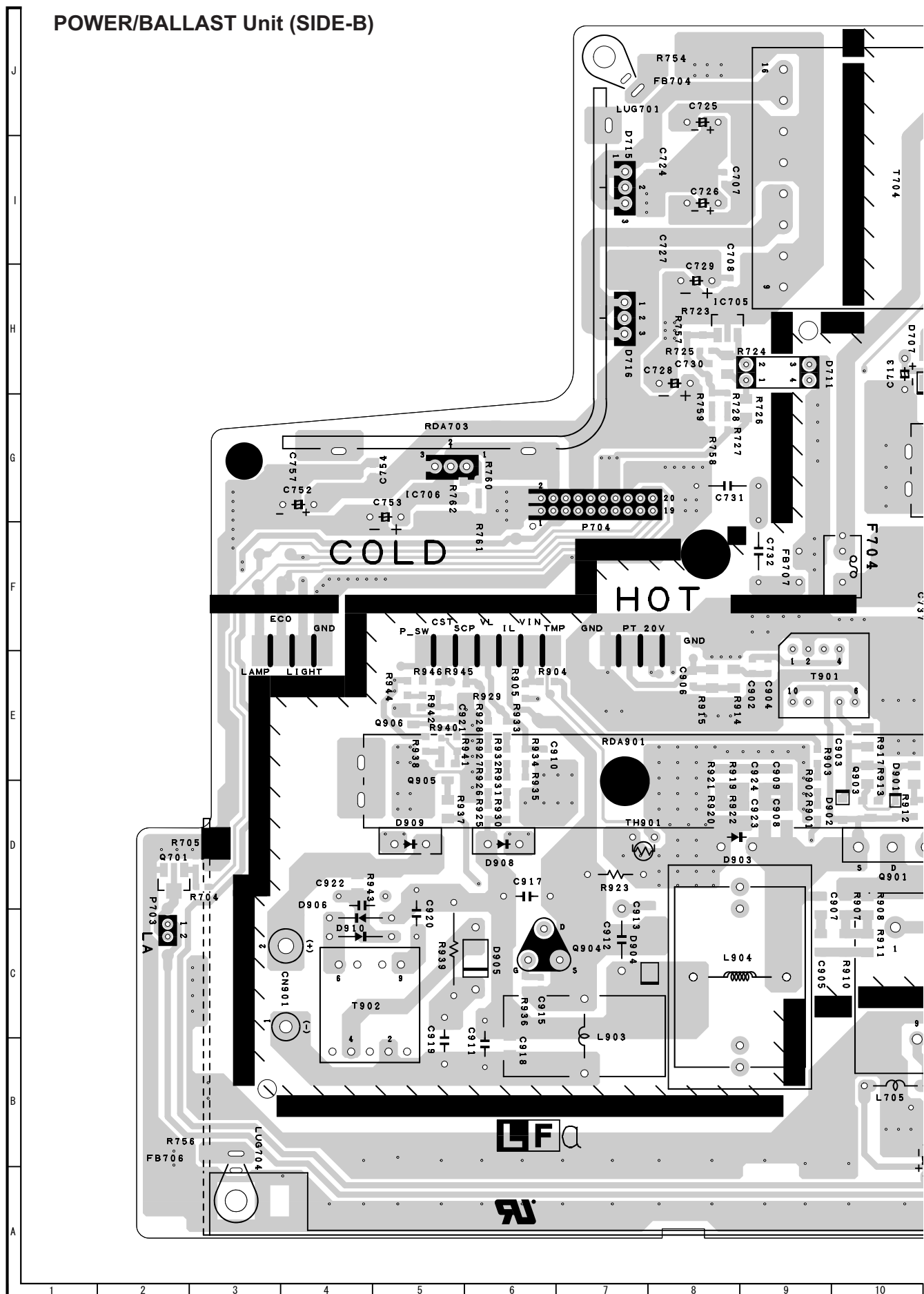
- Capacitors:** C701, C702, C703, C704, C711, C712, C716, C721, C722, C723, C736, C737, C738, C740, C741, C742, C743, C744, C745, C746, C747, C748, C750, C751, C752, C753, C754, C755, C756
- Inductors:** L701, L702, L703, L704, L705
- Resistors:** R701, R702, R703, R704, R705, R706, R707, R708, R709, R710, R711, R712, R713, R714, R715, R716, R717, R718, R719, R720, R721, R722, R723, R724, R725, R726, R727, R728, R729, R730, R731, R732, R733, R734, R735, R736, R737, R738, R739, R740, R741, R742, R743, R744, R745, R746, R747, R748
- Diodes:** D701, D702, D703, D704, D705, D706, D707, D708, D709, D710, D711, D712, D713, D714, D715, D716, D717, D718, D719, D720, D721, D722, D723, D724, D725, D726, D727, D728, D729, D730, D731, D732, D733, D734, D735, D736, D737, D738, D739, D740, D741, D742, D743, D744, D745, D746, D747, D748
- Transistors:** Q701, Q702, Q703, Q704, Q705, Q706, Q707, Q708, Q709, Q710, Q711, Q712, Q713, Q714, Q715, Q716, Q717, Q718, Q719, Q720, Q721, Q722, Q723, Q724, Q725, Q726, Q727, Q728, Q729, Q730, Q731, Q732, Q733, Q734, Q735, Q736, Q737, Q738, Q739, Q740, Q741, Q742, Q743, Q744, Q745, Q746, Q747, Q748
- Other Components:** F701, F702, F703, F704, F705, F706, F707, F708, F709, F710, F711, F712, F713, F714, F715, F716, F717, F718, F719, F720, F721, F722, F723, F724, F725, F726, F727, F728, F729, F730, F731, F732, F733, F734, F735, F736, F737, F738, F739, F740, F741, F742, F743, F744, F745, F746, F747, F748

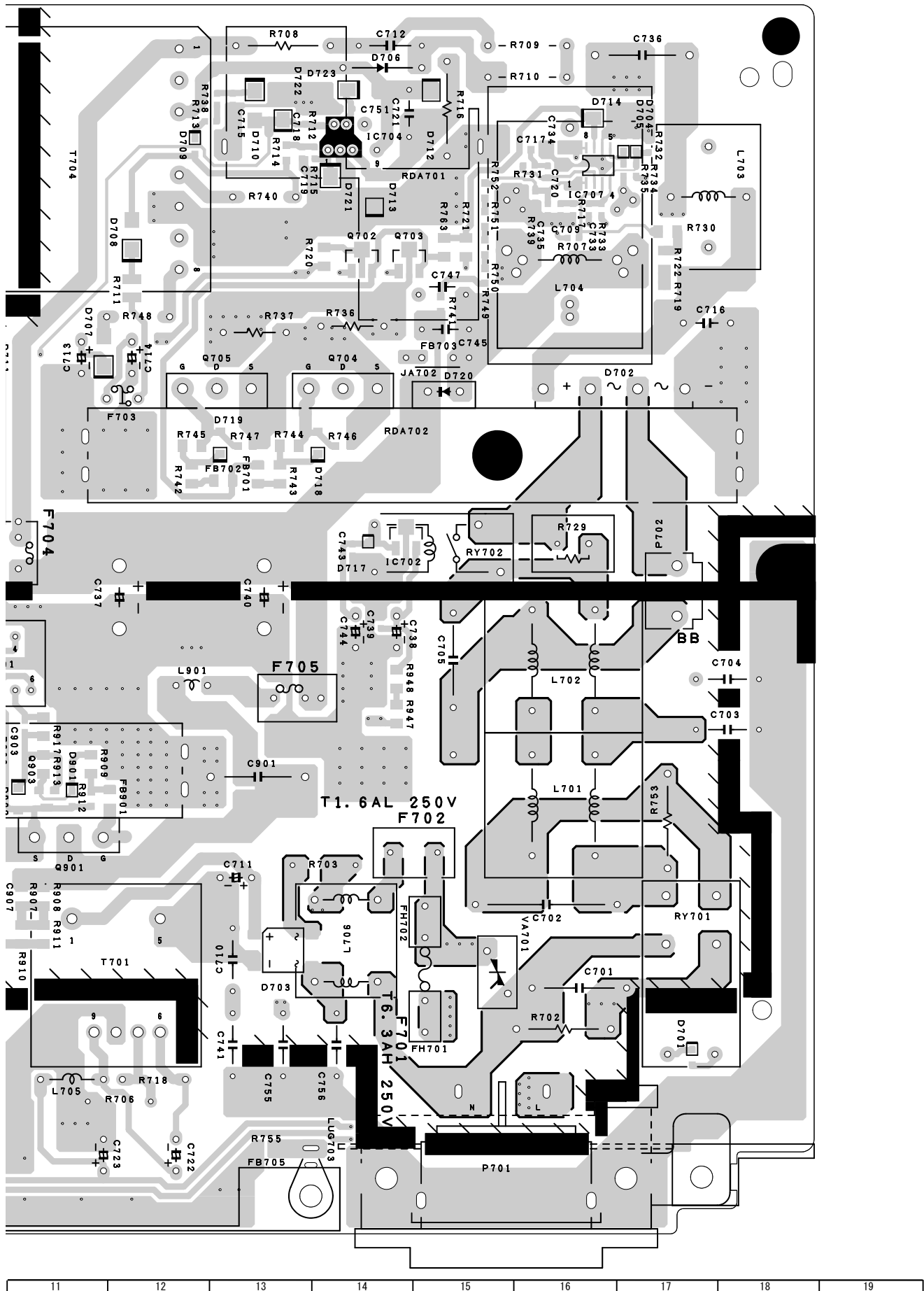
Unit Identification: DUNLOP D859W

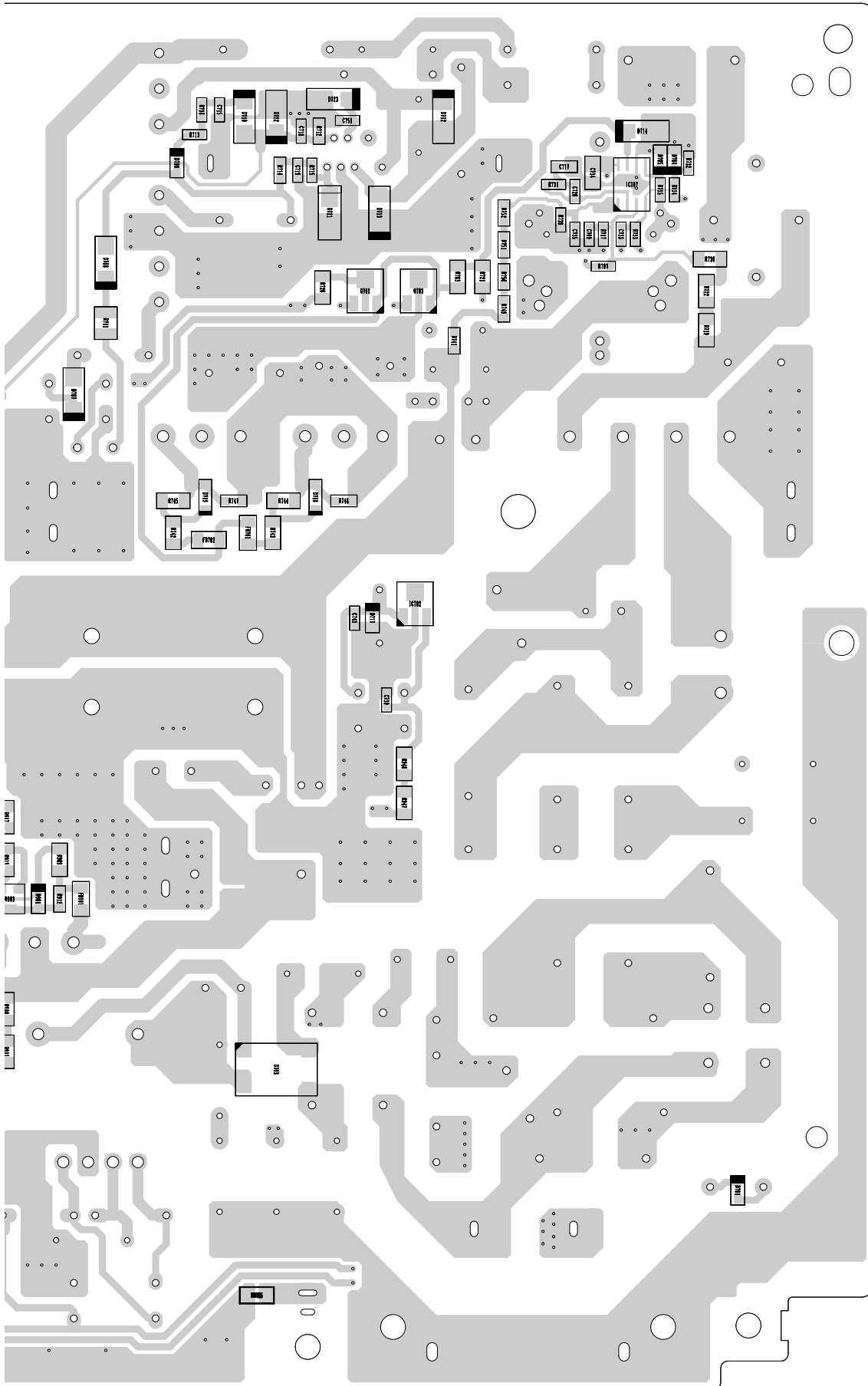


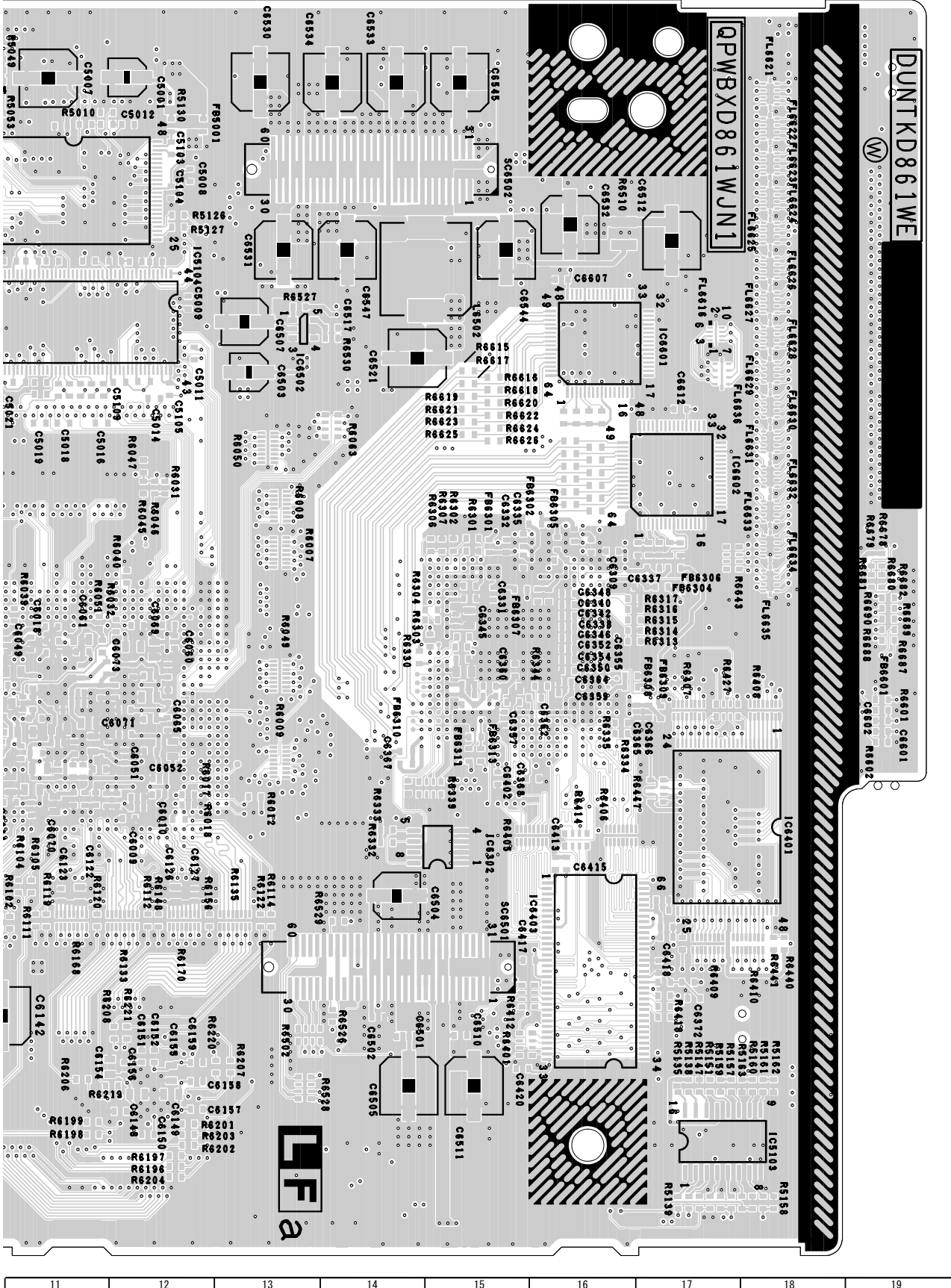
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POWER/BALLAST Unit (SIDE-B)

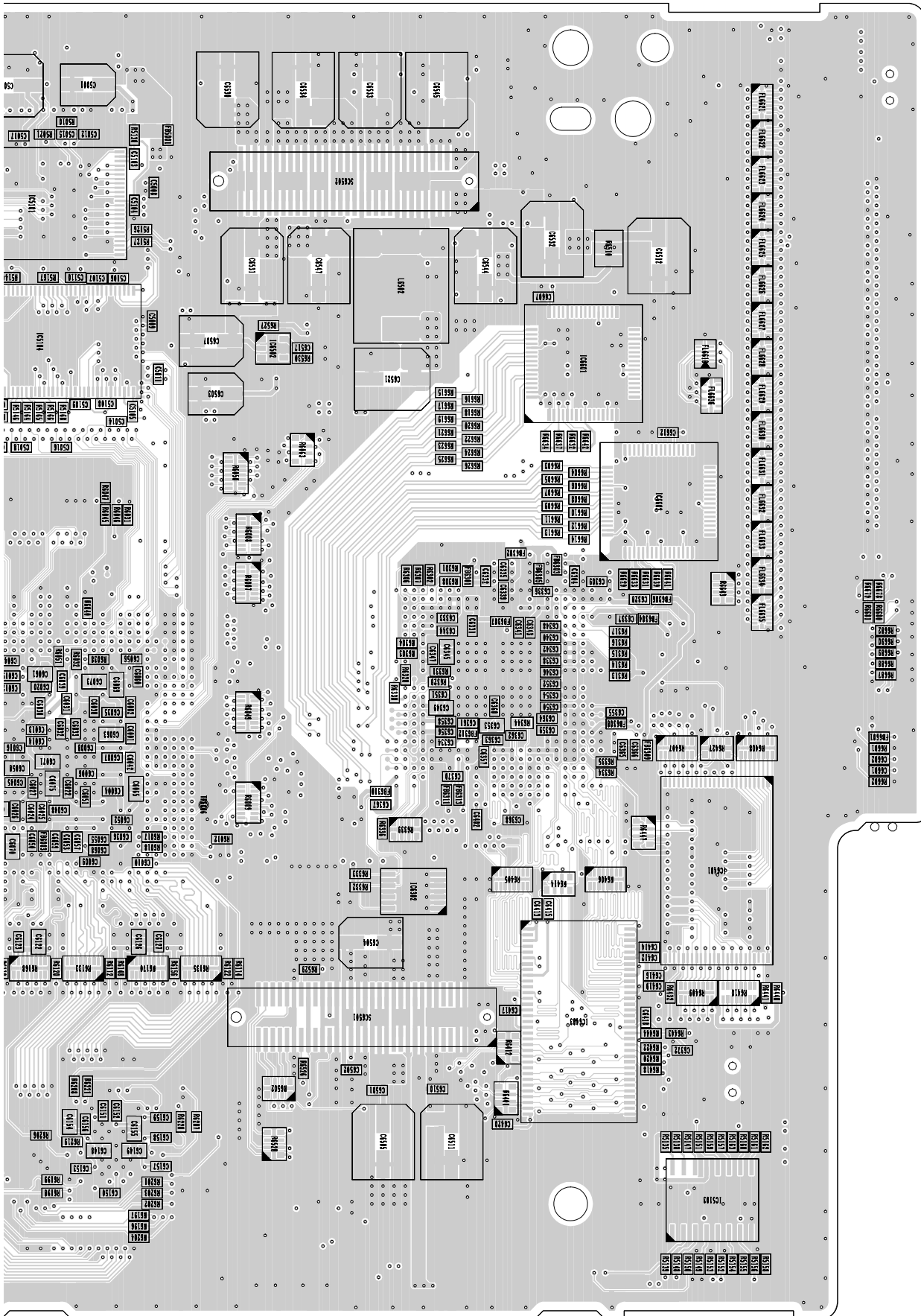






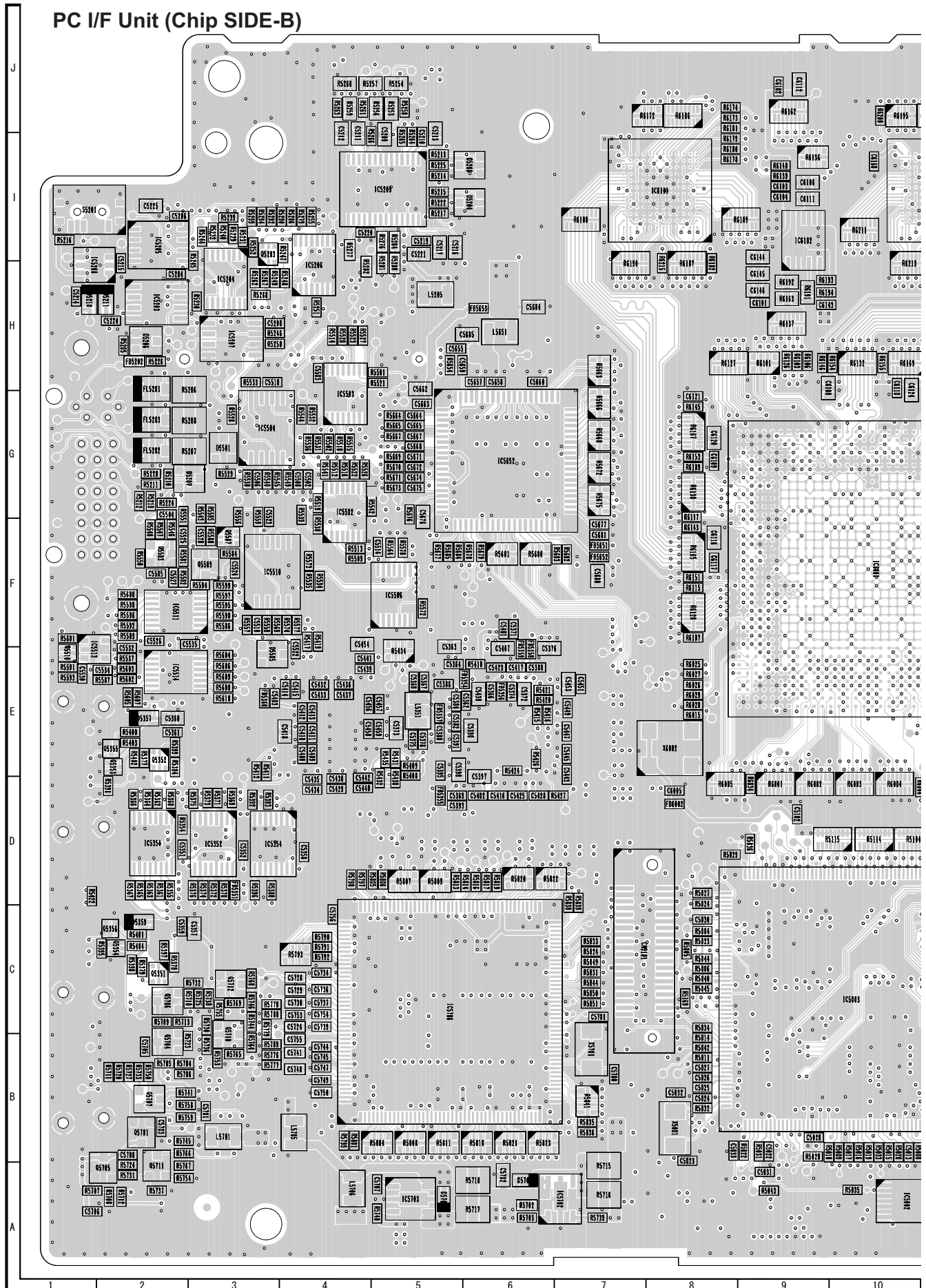


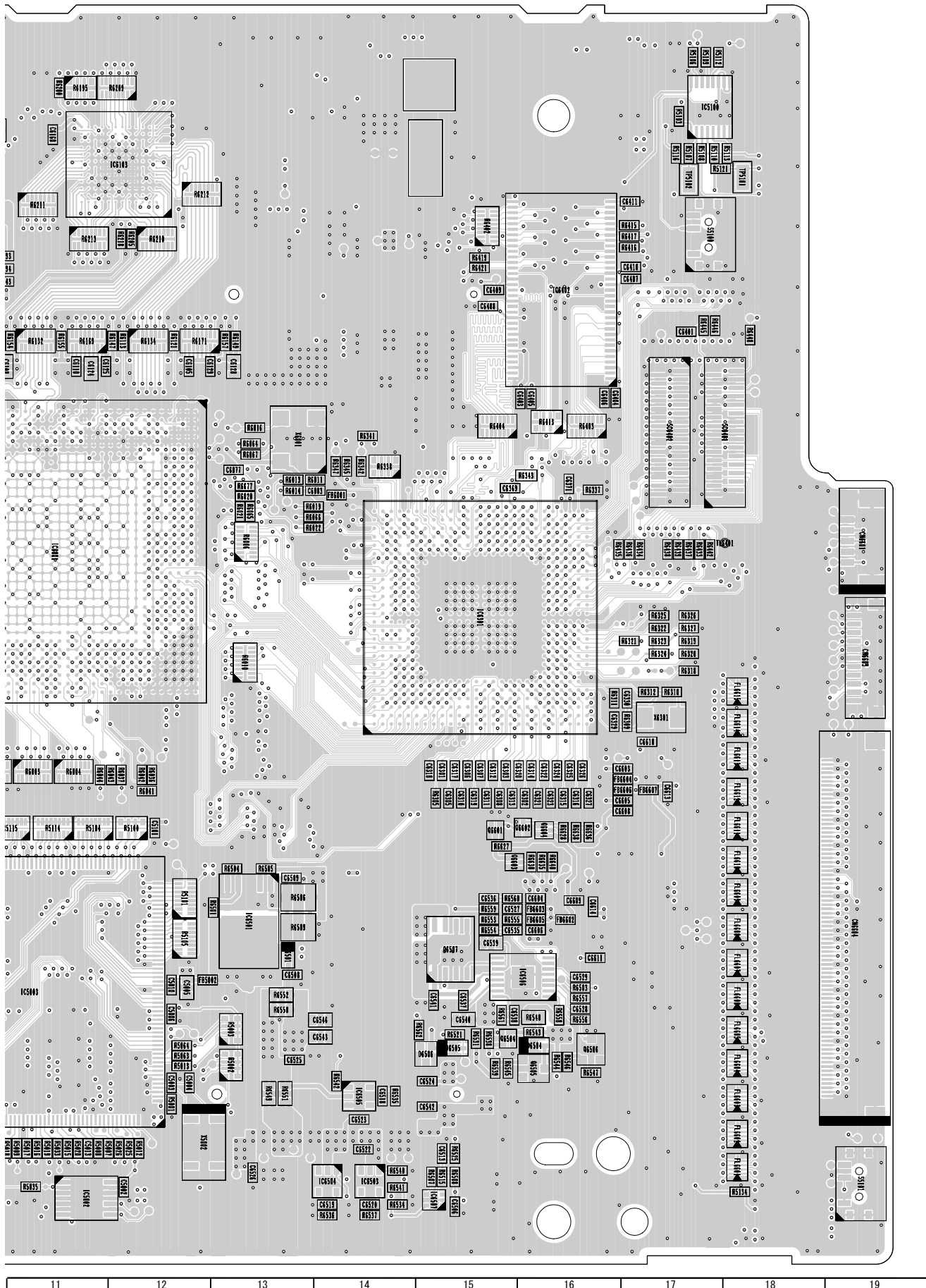






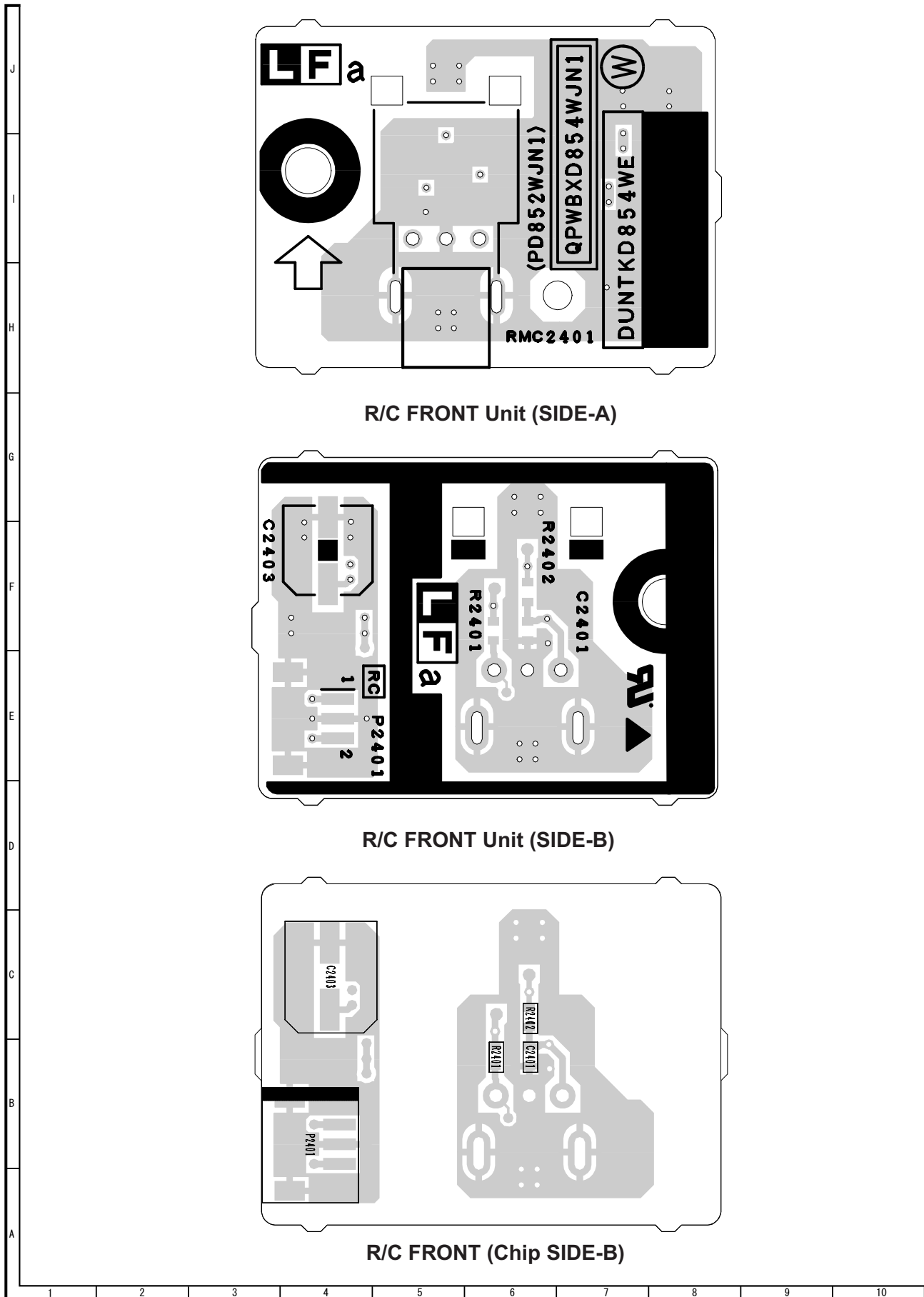
PC I/F Unit (Chip SIDE-B)







[6] R/C Front Unit



[7] R/C Rear Unit

